FlightSafety
Textron Aviation

TRAINING

CITATION 560XL/XLS/XLS+ SERIES MAINTENANCE SCHEMATIC MANUAL

SECOND EDITION
Revision 0.3

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Dates of issue for original and changed pages are:

Second Edition .. 0 ..... June 2016
Revision ..... 0.1 ..... May 2018
Revision ..... 0.2 ..... March 2019
Revision ..... 0.3..... January 2020

NOTE:

Revision numbers in footers occur at the bottom of every page that has technical changes to the text and/or illustrations. Reflow of pages, grammatical, or typographical changes that do not affect the meaning are excluded from this list.

THIS PUBLICATION CONSISTS OF THE FOLLOWING:

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Copyright	0.3
LEP	0.3
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NOTICE

The material contained in this training manual is based on information obtained from the aircraft manufacturer's pilot manuals and maintenance manuals. It is to be used for familiarization and training purposes only.

At the time of printing it contained then-current information. In the event of conflict between data provided herein and that in publications issued by the manufacturer or the applicable regulatory agency, that of the manufacturer or the regulatory agency shall take precedence.

We at FlightSafety Textron Aviation Training want you to have the best training possible. We welcome any suggestions you might have for improving this manual or any other aspect of our training program.

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CHAPTER 1
INTRODUCTION

01

INTRODUCTION

This training manual provides a description of the major airframe and engine systems as installed in the Cessna Citation 560 Excel series aircraft. This information is intended as an instructional aid only; it does not supersede, nor is it meant to substitute for, any of the manufacturer's maintenance or operating manuals. This material has been prepared from the basic design data, and all subsequent changes in aircraft appearance or system operation will be covered during academic training and subsequent revisions to this manual.

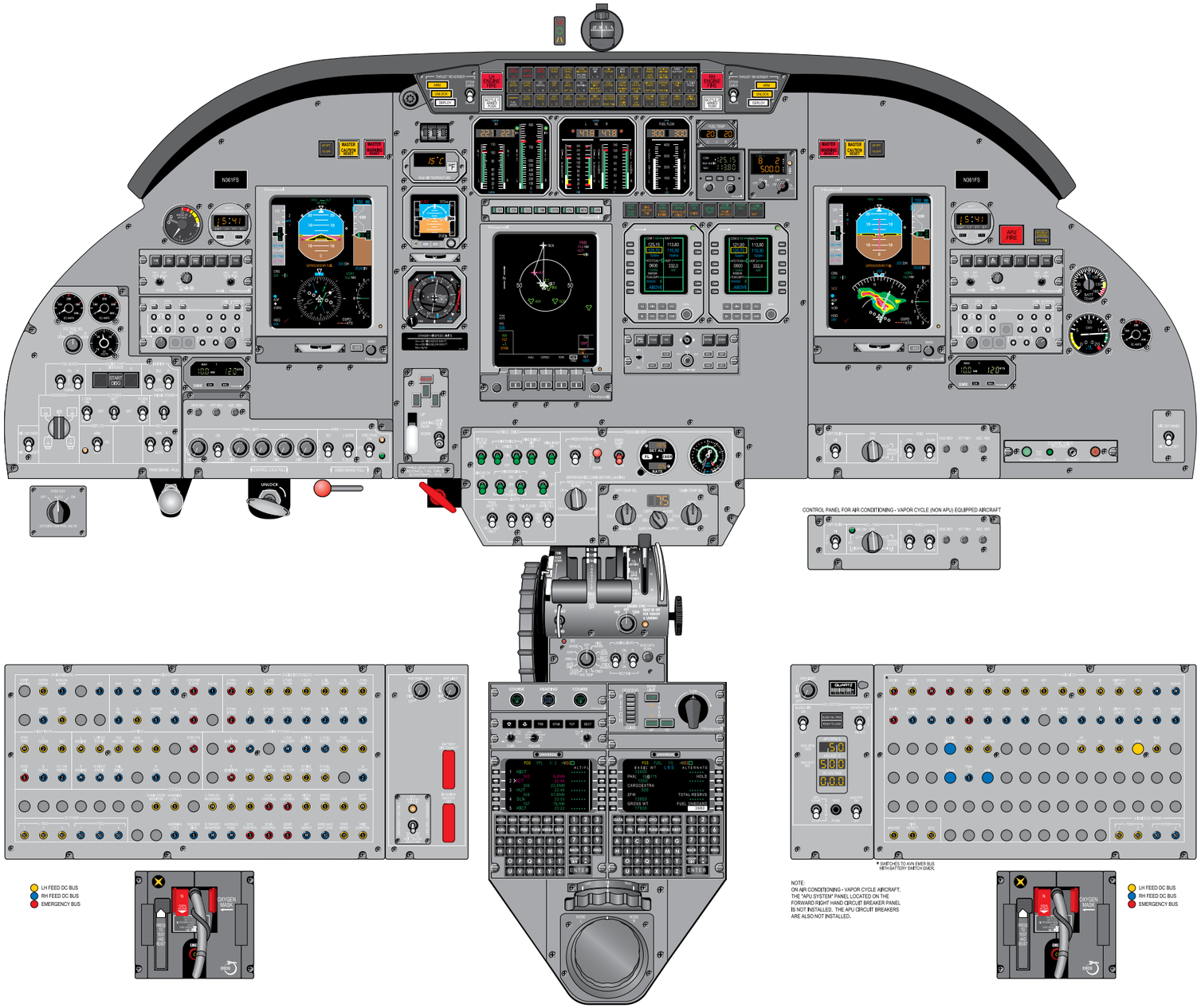


Figure 1-1. Citation Excel Instrument Panel Poster

NOTES

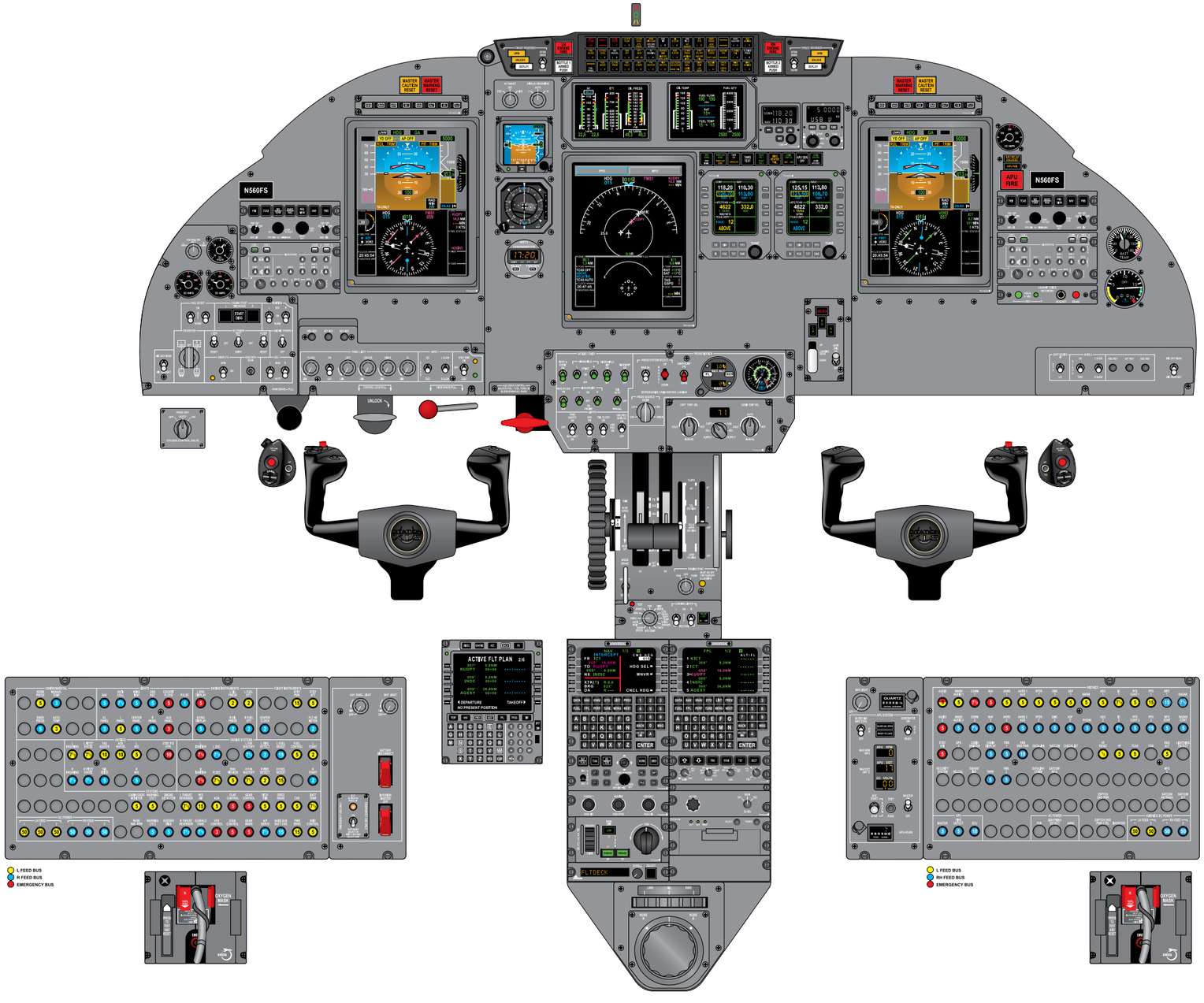


Figure 1-2. Citation XLS Instrument Panel Poster

NOTES

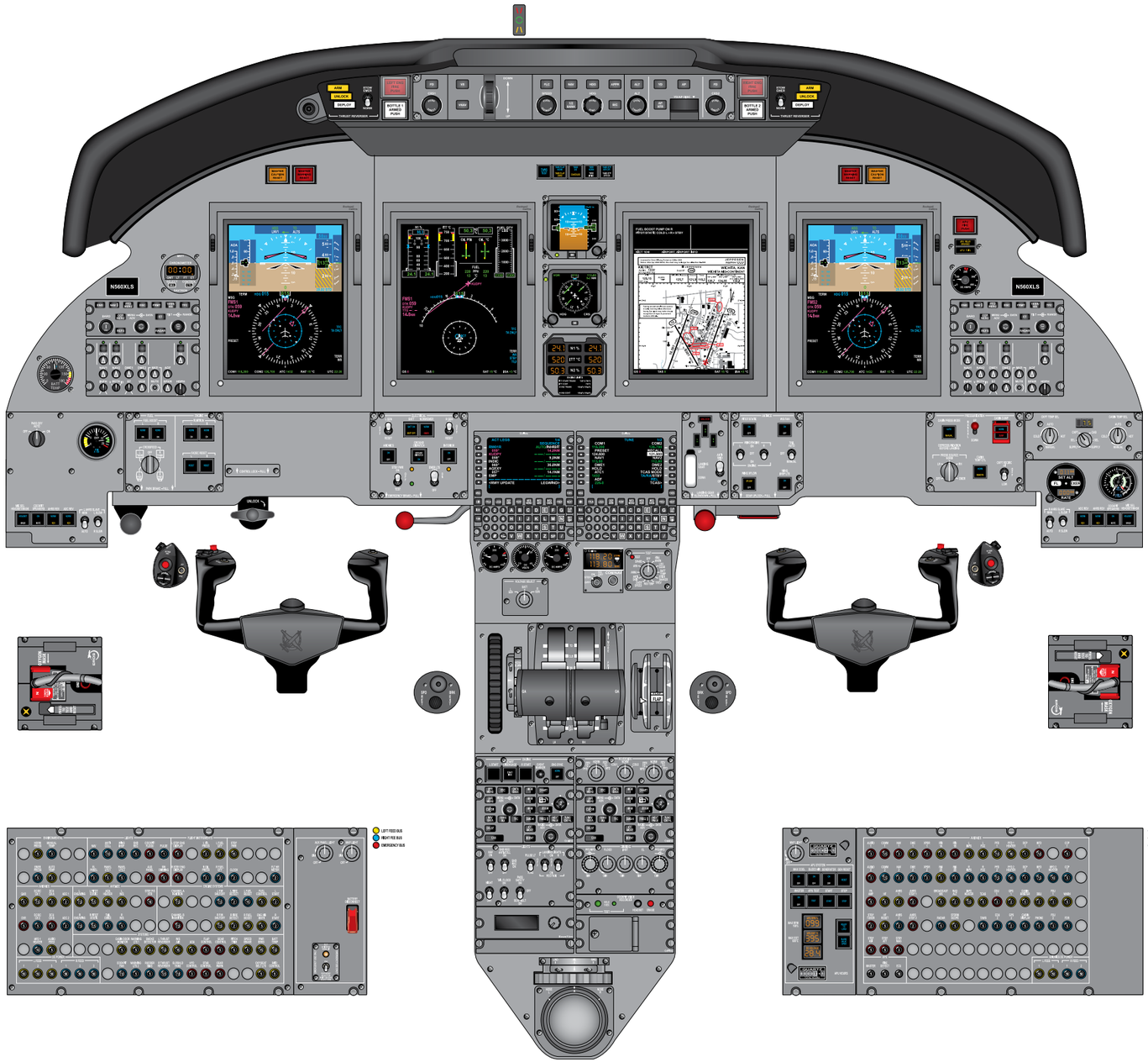


Figure 1-3. Citation XLS+ Instrument Panel Poster

NOTES

CHAPTER 2
ATA 100

INTRODUCTION

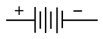
The purpose of this chapter is to describe the arrangement, numbering system, and special features of the *Air Transport Association (ATA)* format for aircraft maintenance manuals. To take advantage of all the material presented in an ATA 100 manual, the maintenance technician must become thoroughly familiar with the outline and contents presented for any given airplane.

GENERAL

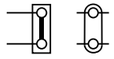
The Cessna Citation 560XL/XLS/XLS+ Maintenance Manual, Illustrated Parts Catalog, and Wiring Diagram Manual are prepared in accordance with the Air Transport Association Specification No. 100 for manufacturer's technical data.

These manuals have been prepared to assist maintenance personnel in servicing and maintaining Citation airplanes. They provide the necessary information required to enable the mechanic to service, inspect, trouble-shoot, remove and replace components, or repair systems.

BATTERY



BUS



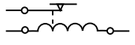
CAP AND STOW

CAPACITOR

CIRCUIT BREAKER

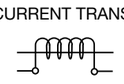
CONNECTOR

CURRENT SENSOR



Current flowing in coil opens switch to indicate circuit is functioning correctly.

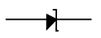
CURRENT TRANSFORMER



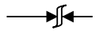
Current flowing in wire produces a voltage in coil.

DIODE

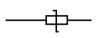
REGULAR — Low resistance forward, high resistance reverse.



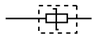
ZENER — Low resistance forward, high resistance reverse until a specific voltage is applied, then conducts freely.



TRANZORB — A tranzorb is similar to a zener, but with higher peak current limit.



VARISTOR — High resistance either way until a specific voltage is applied, then conducts freely. Example: V47ZA1 conducts freely above 47 volts.



VARISTOR — Encapsulated for moisture protection.

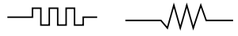
FILTER

Passes direct current but opposes pulsating current used to reduce noise in sensitive avionics equipment.

GROUND

HEADSET

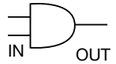
HEATER



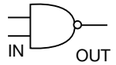
HORN/SPEAKER

INTEGRATED CIRCUIT

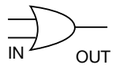
Integrated circuits do not necessarily work on the principle of ON–OFF as a switch; instead some work on high and low voltage. Example: high might be 5.0 volts and low might be 0.5 volts.



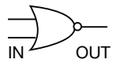
AND GATE — Output is low until both inputs are high; then the output is high.



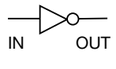
NAND GATE — Output is high until both inputs are high; then the output is low.



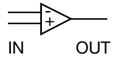
OR GATE — Output is low until either or both inputs are high, then output is high.



NOR GATE — Output is high until either or both inputs are high; then output is low.



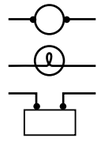
INVERTER — Output is low when input is high; output is high when input is low.



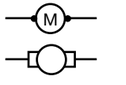
OPERATIONAL AMPLIFIER (OP AMP) — Amplifies the difference in voltage between the two inputs. The minus input is the inverting input, and the plus is the non-inverting input. If an input is applied to the minus input, with the plus input grounded, the polarity of the output will be opposite to the input. If an input is applied to the plus input, with the minus input grounded, the polarity of the output will be the same as that of the input.

TIMER — Changes the output from high to low in a regular pattern.

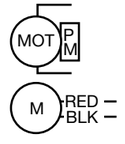
LAMP



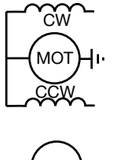
MOTOR



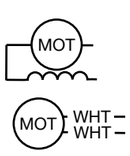
Basic symbol for motor.



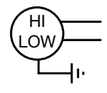
REVERSIBLE MOTOR — Direction of rotation is controlled by reversing power and ground on input wires.



REVERSIBLE MOTOR — Direction of rotation is controlled by applying power to either field winding input wire.



NONREVERSIBLE MOTOR — Direction of rotation is controlled by design; input wires may be connected either way.



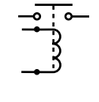
NONREVERSIBLE MOTOR — Two speed controlled by applying power to either input wire.

FUSE/LIMITER

PHONE JACK

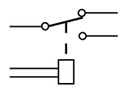
The symbol for the solenoid may be a box or a coil; the operation is identical.

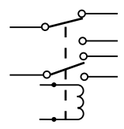
RELAY



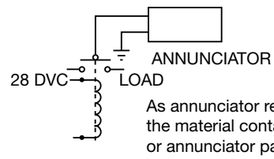
CURRENT FLOW WITH POWER APPLIED

CURRENT FLOW THE INSTANT POWER IS REMOVED

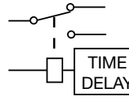




A diode is connected across the input wires of relays and solenoid operated devices such as valves to protect voltage sensitive navigation and electronics equipment. The diode is reverse-biased for normal power and no current flows through the diode. Current flowing through the coil of wire produces a magnetic field to operate the relay or valve. The instant power is removed from the coil, the collapsing magnetic field produces a momentary spike of high voltage which can be several hundred volts depending on the current and the number of turns of wire in the coil. The diode is forward-biased for the power generated in the coil and the high voltage spike is dissipated through the diode. A varistor is used in place of the diode on some relays.



As annunciator relay has a connection on the material contact to indicate by a light or annunciator panel when the relay is energized.



The contacts of a time delay relay do not move to the energized position usually when power is applied.

For some time delay relays, the delay time is part of the relay design.

For some time delay relays, the delay time is controlled by the size of an external resistor.

Jumper wire gives 0.1 seconds of delay.

160.000 OHM resistor gives a 10-second delay.

Other resistors give a delay time between 0.1 second and 1.0 second.

EXTERNAL RESISTOR

RESISTOR

REGULAR — Resistance does not change.

TEMPERATURE CONTROLLED — Resistance change with the temperature.

VARIABLE OR ADJUSTABLE — Resistance changes with mechanical input.

Figure 2-1. Symbology List and Description (Sheet 1 of 2)

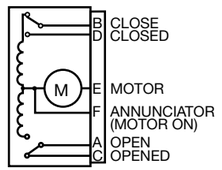
RESISTOR (Cont.)

RHEOSTAT — Type of variable resistor with two wires.

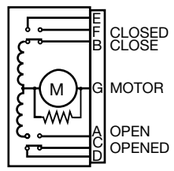
POTENTIOMETER — Type of variable resistor with three wires.

SOLENOID/SOLENOID VALVE

MOTOR OPERATED — Limit switches stop power when limit of travel is reached.



SHOWN OPEN



SHOWN OPEN

MOTOR OPERATED — Limit switches stop power when limit of travel is reached.

SHUNT

SPLICE

ENVIRONMENTAL

SWITCH

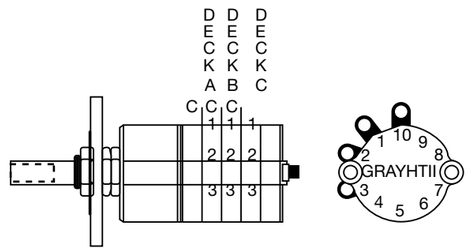
SINGLE-POLE/SINGLE-THROW (SPST)

SINGLE-POLE/DOUBLE-THROW (SPDT) — May have OFF position in the center.

DOUBLE-POLE/DOUBLE-THROW (DPDT) — May have OFF position in the center. Dashed line indicates all parts move simultaneously.

ROTARY OR MULTIPOSITION

TWO-POLE ROTARY — On rotary or multiple pole switches controlled by a knob, the poles (or decks) are identified on wiring diagrams as A, B, C, with A being the part on the knob or shaft end.



SIDE VIEW — REAR VIEW

WITH TYPICAL TERMINAL NUMBERING

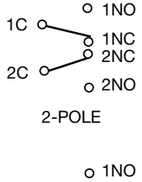
C = Common terminal for each deck

1 – 10 = Switch Terminal Position

EXAMPLE:

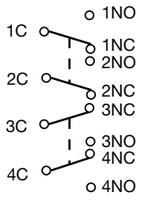
AC = Common Terminal of deck A

B1 = Switch position 1 on deck B

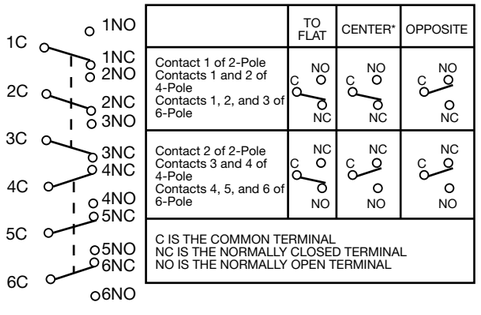


1NO TWO-STAGE — Two-pole, four-pole, or six-pole switch designed so that all moveable switch contacts do not move simultaneously.

2-POLE



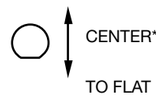
4-POLE



	TO FLAT	CENTER*	OPPOSITE
Contact 1 of 2-Pole Contacts 1 and 2 of 4-Pole Contacts 1, 2, and 3 of 6-Pole	C NO NC	C NO NC	C NO NC
Contact 2 of 2-Pole Contacts 3 and 4 of 4-Pole Contacts 4, 5, and 6 of 6-Pole	C NC NO	C NC NO	C NC NO
C IS THE COMMON TERMINAL NC IS THE NORMALLY CLOSED TERMINAL NO IS THE NORMALLY OPEN TERMINAL			

6-POLE

OPPOSITE



Handle position is reference to flat side of the mounting threads.

*NOTE: Some switches of this type do not have a center position.

SWITCH (Cont.)

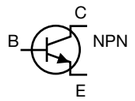
PRESSURE-OPERATED

TEMPERATURE-OPERATED

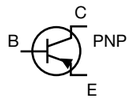
TERMINAL STRIP

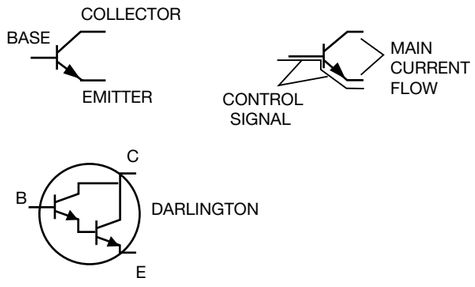
TRANSFORMER

TRANSISTOR



Transistor contacts are identified as base, collector, and emitter. Flow of current through a transistor is controlled by the signal applied to the base. The control current (3 to 5% of total current) flows between base and emitter. The main flow of current (95 to 97%) is between the collector and emitter. Transistors may be drawn without the circle.





WIRE

TWISTED

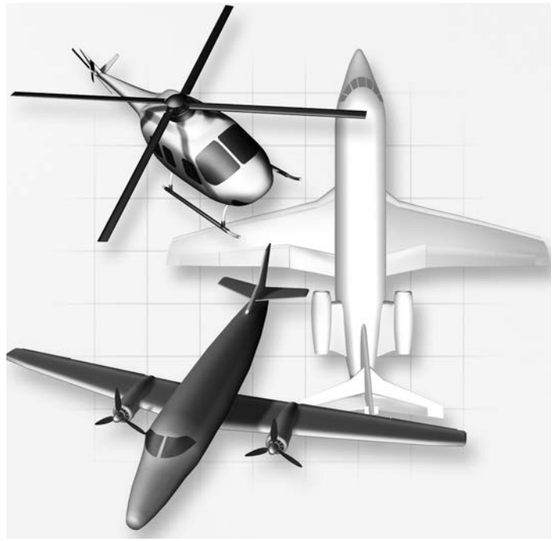
SHIELDED

Q12A20 HIGH-TEMPERATURE WIRE

Figure 2-1. Symbology List and Description (Sheet 2 of 2)

NOTES

CHAPTER 5-12
AIRCRAFT GENERAL



INTRODUCTION

This chapter includes illustrations and statistical information concerning the Citation XL/XLS/XLS+ series aircraft. Provided are overall aircraft dimensions, station locations, aircraft zoning, location of major structural members and components. Information is also provided concerning ground handling, servicing information and inspection requirements

GENERAL

Information is provided on airworthiness and limitations, time limits and checks, continuous inspection program, dimensions, areas, locations and zoning. Information is also provided concerning access panels and plates, jacking practices, leveling and weighing, towing, taxiing and parking. A section on servicing and replenishing is provided for components,valves, filters, fuel, batteries, pneumatics, hydraulics, lubricants , cleaning materials, and deicing fluids.

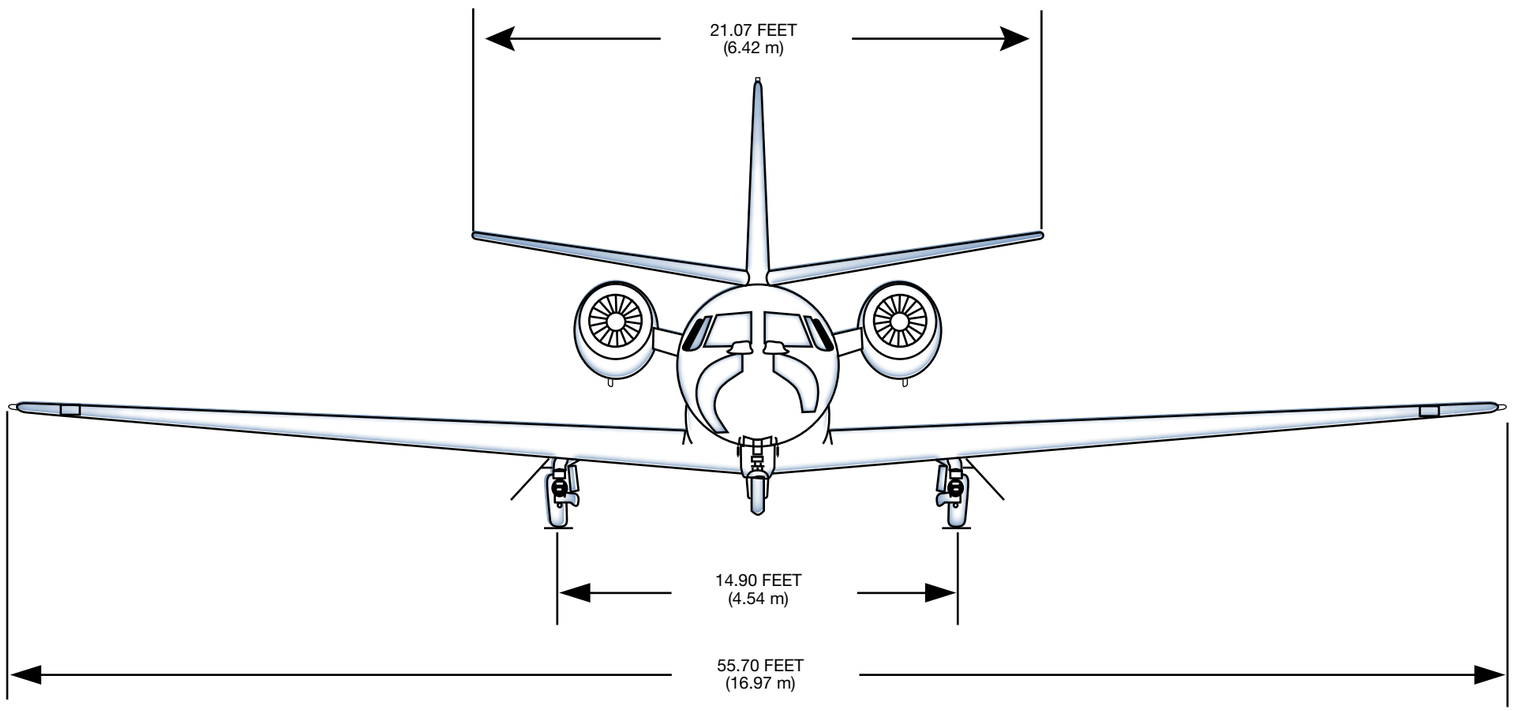
DIMENSIONS AND AREAS

This Section includes illustrations and statistical information concerning the Citation XL/XLS/XLS+ aircraft. Provided are overall aircraft dimensions, surface areas, station locations, location of major structural members, access plates, panels, floorboards, fairings, aircraft zoning and aircraft drain locations.

Dimensions and measurements are presented to aid the operator and/or maintenance personnel in ground handling the aircraft and locating the components. Measurements are expressed in feet (meters), inches (millimeters), and degrees.

Description

This section identifies dimensions and areas of the aircraft and aircraft components in tabular form. Dimensions are selected for pertinent information of measurements that will aid the operator in providing storage, passing through hangar doors, covering isolated areas of the aircraft, and building/ordering maintenance stands. The dimensions are expressed in feet, inches, degrees, and minutes. Aircraft assembly areas are expressed in square feet.



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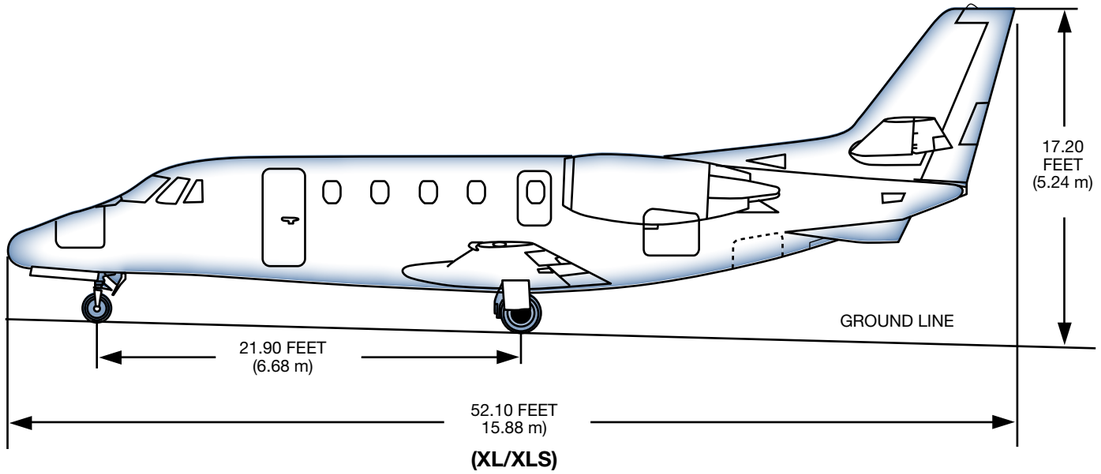

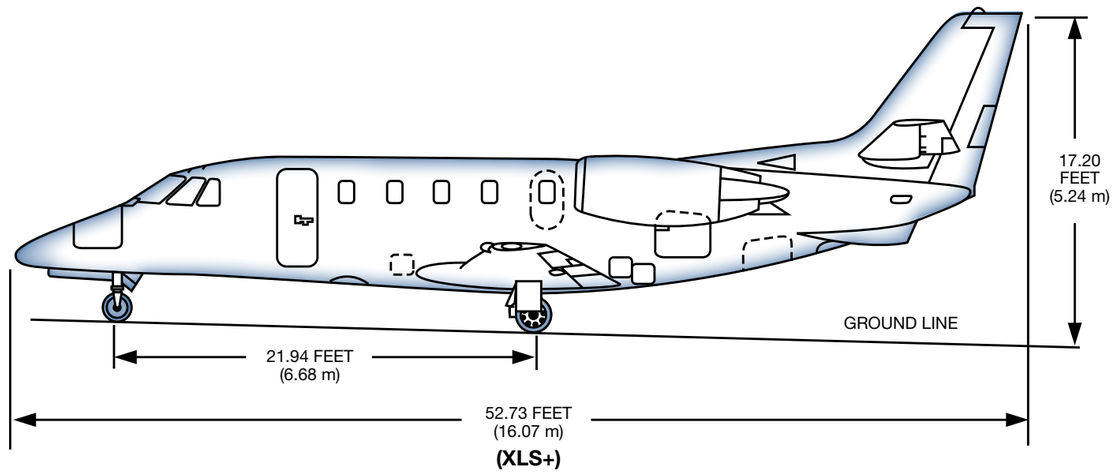

Figure 5-1. Airplane Dimensions

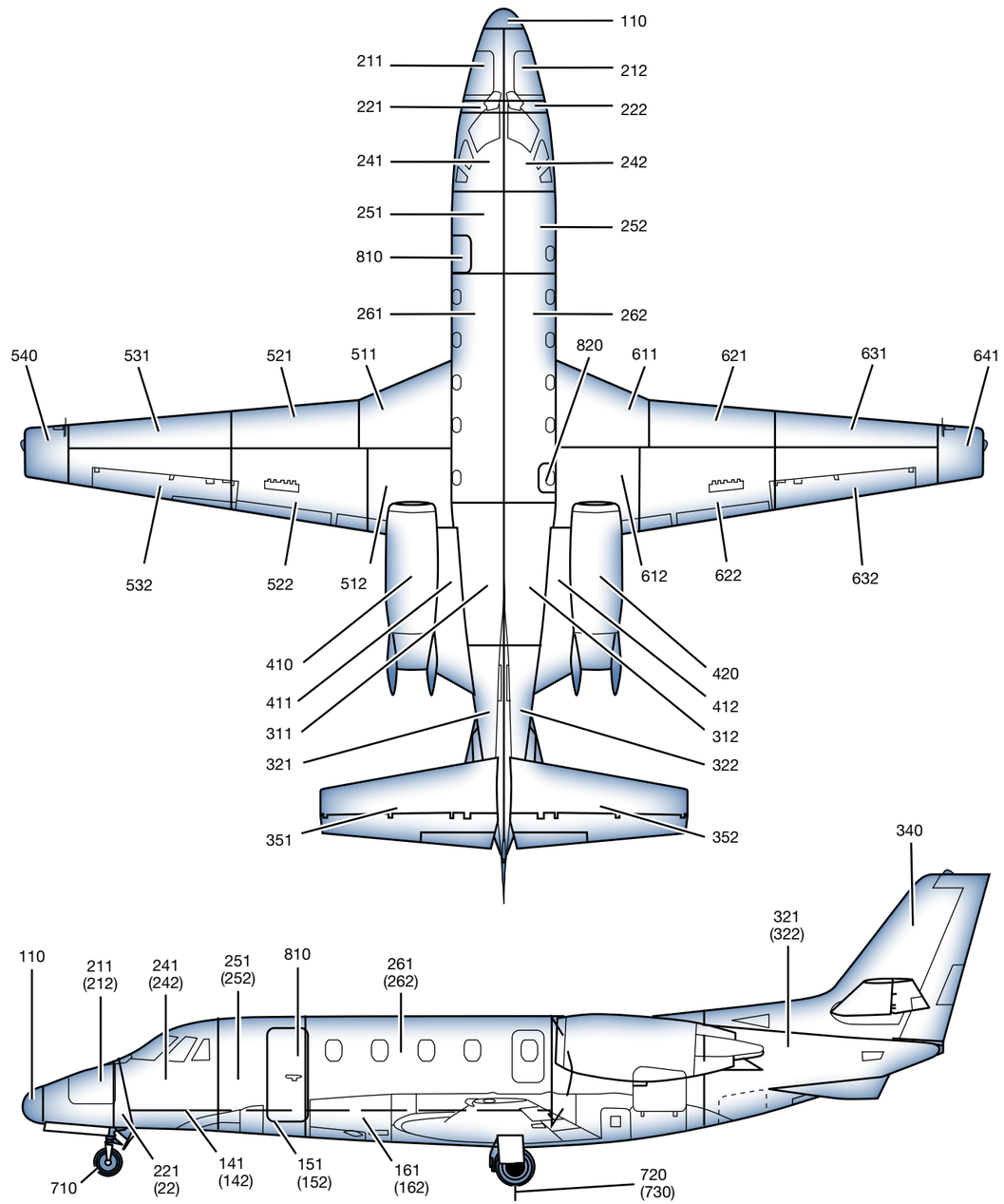

Figure 5-2. Airplane Zones

NOTES

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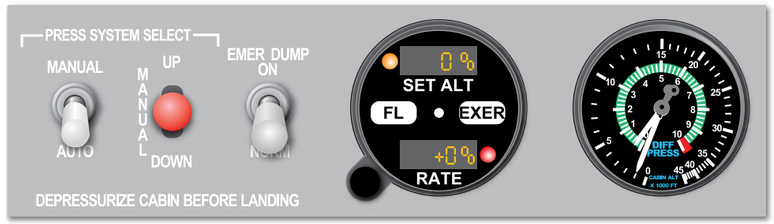
CHAPTER 21
AIR CONDITIONING

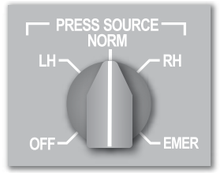
INTRODUCTION

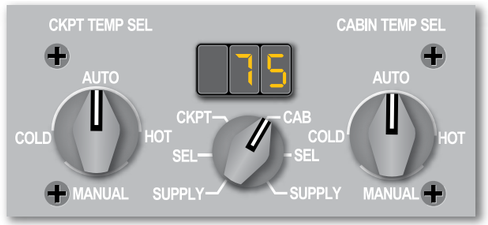
This Chapter describes the air distribution, air conditioning, and pressurization systems on the model 560 XL/XLS/XLS+ aircraft. These three separate but interrelated systems are presented in three sections. Information is provided regarding air distribution within the cabin and how it is controlled. The components and their operation for the air conditioning (vapor cycle cooling) system and pressurization system are also discussed. References for this chapter and further specific information can be found in Chapter\ 5—"Time Limits/ Maintenance Checks," Chapter 12—"Servicing," Chapter 21—"Air Conditioning," and Chapter 36—"Pneumatics" of the *Aircraft Maintenance Manual (AMM)*.

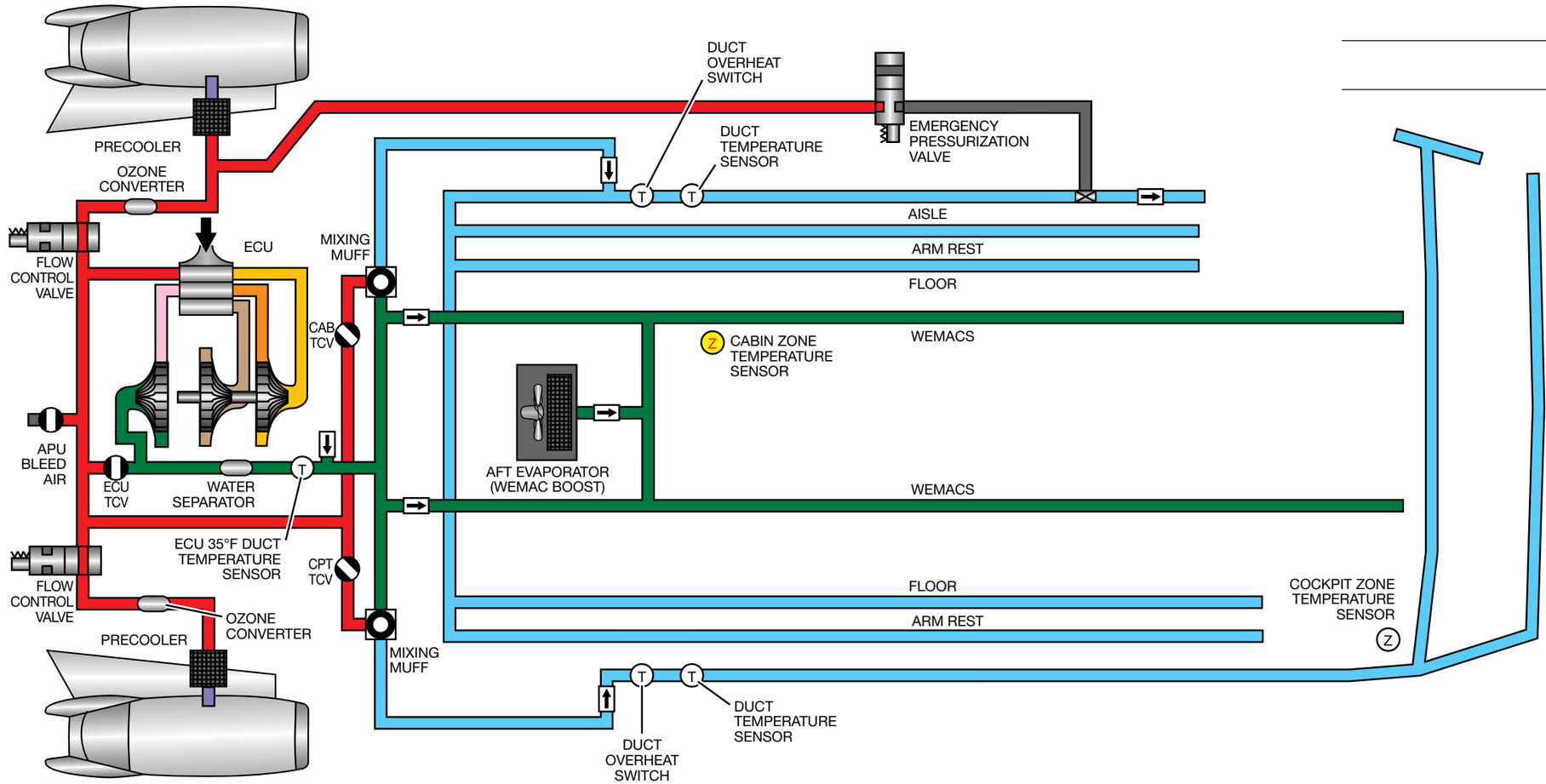
AIR DISTRIBUTION—GENERAL

This section describes the devices and components used to create cool air/warm air, the methods of distributing this air to each area of the aircraft, and pressurization. The 560 XL/XLS/XLS+ uses a single allied signal environmental control unit (ECU) to transform hot engine [or auxiliary power unit (APU)] bleed air to cool conditioned air. This cooled conditioned air is available for use in the cool air distribution system or mixed with hot bleed air for the warm air distribution system.









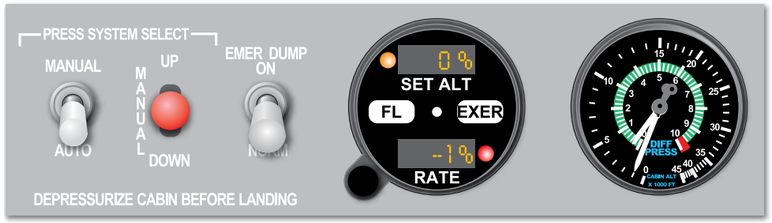
LEGEND

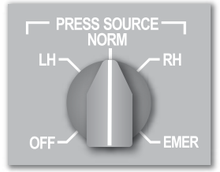
- COLD ACM (TURBINE) DISCHARGE AIR
- ENGINE BLEED AIR
- PRECOOLED AIR
- COMPRESSOR DISCHARGE AIR
- CONDITIONED AIR
- PRIMARY HEAT EXCHANGE AIR
- SECONDARY HEAT EXCHANGE AIR
- ACM EXHAUST
- APU BLEED AIR

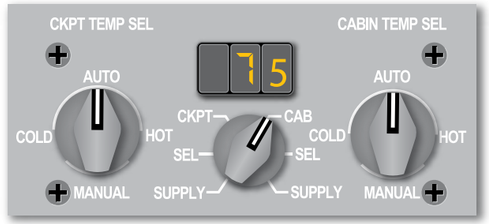
CONDITION:
TEMP CONTROL—NORMAL

Figure 21-1. Temperature Control (Sheet 1 of 4)

NOTES







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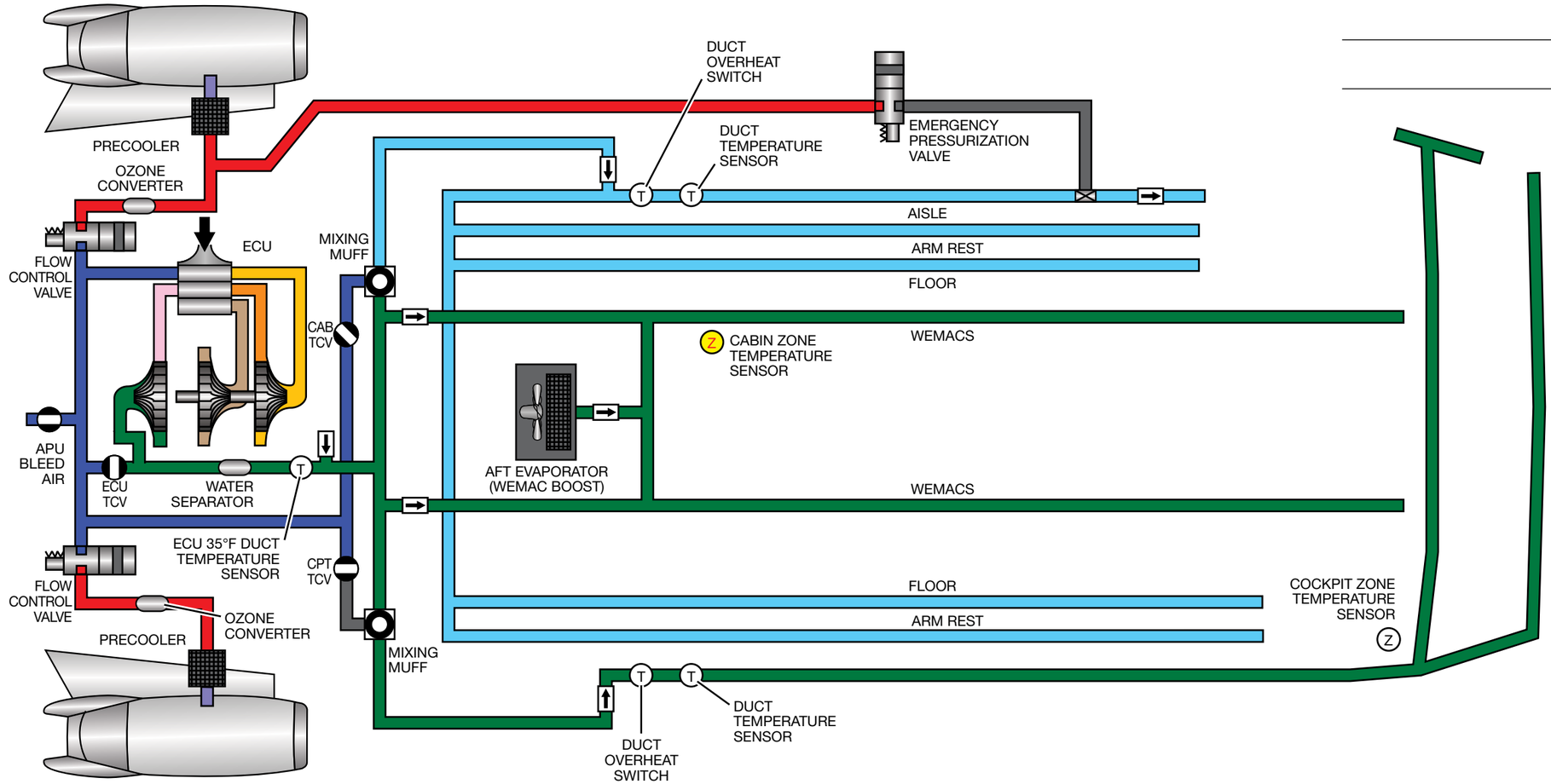
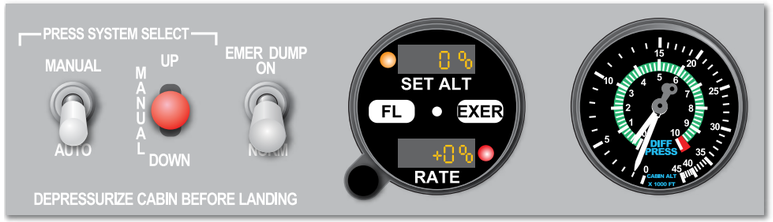
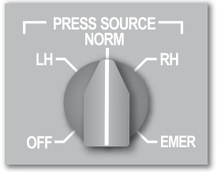
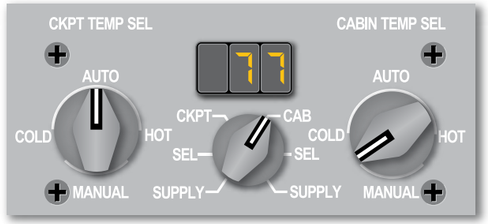


Figure 21-1. Temperature Control (Sheet 2 of 4)







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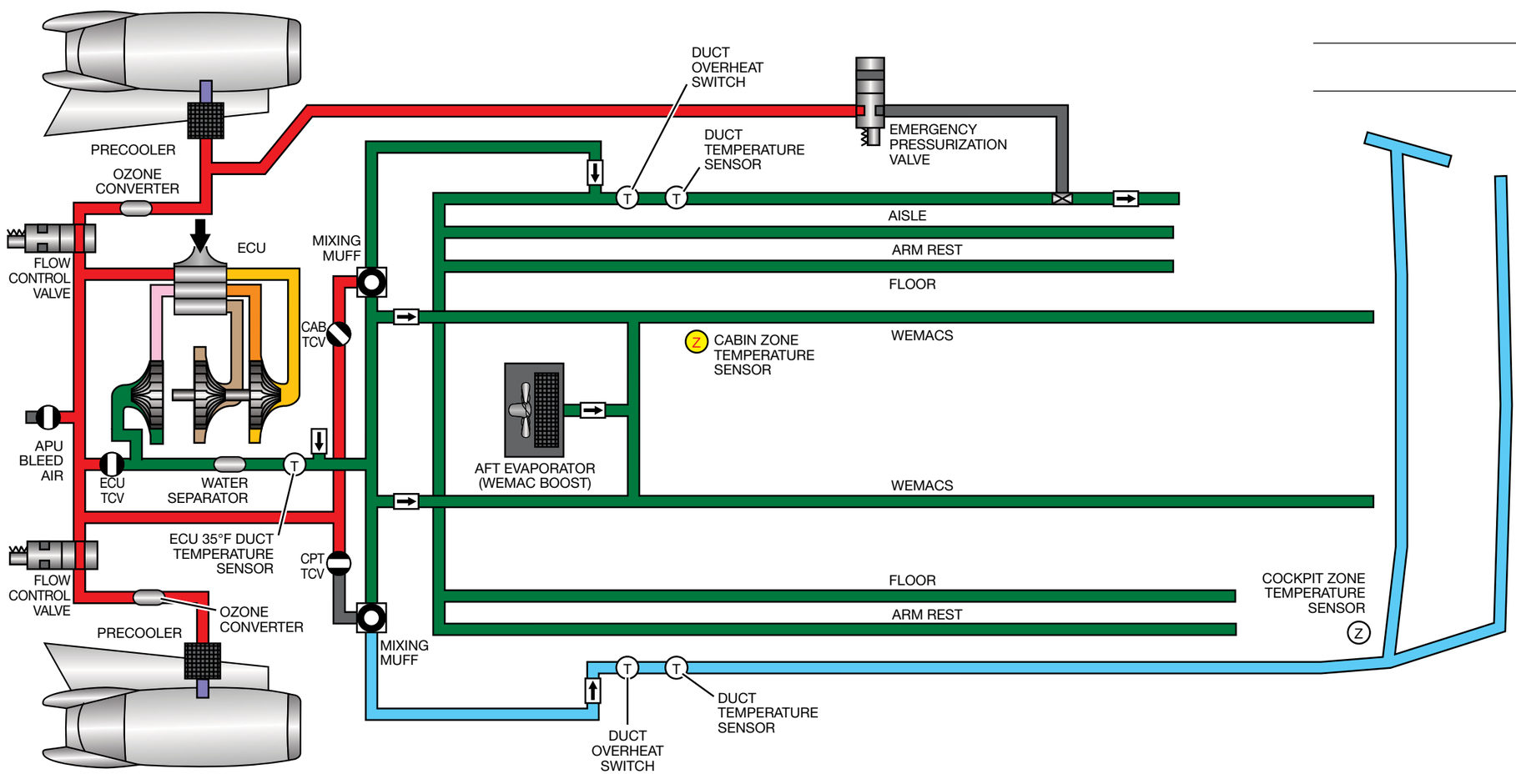

Figure 21-1. Temperature Control (Sheet 3 of 4)

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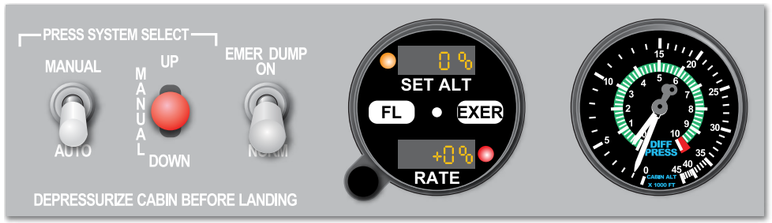
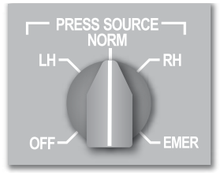
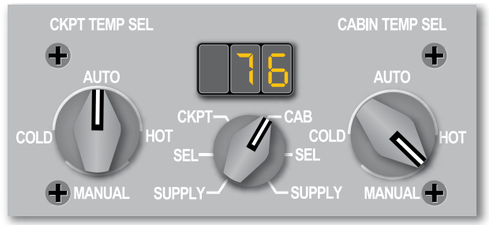






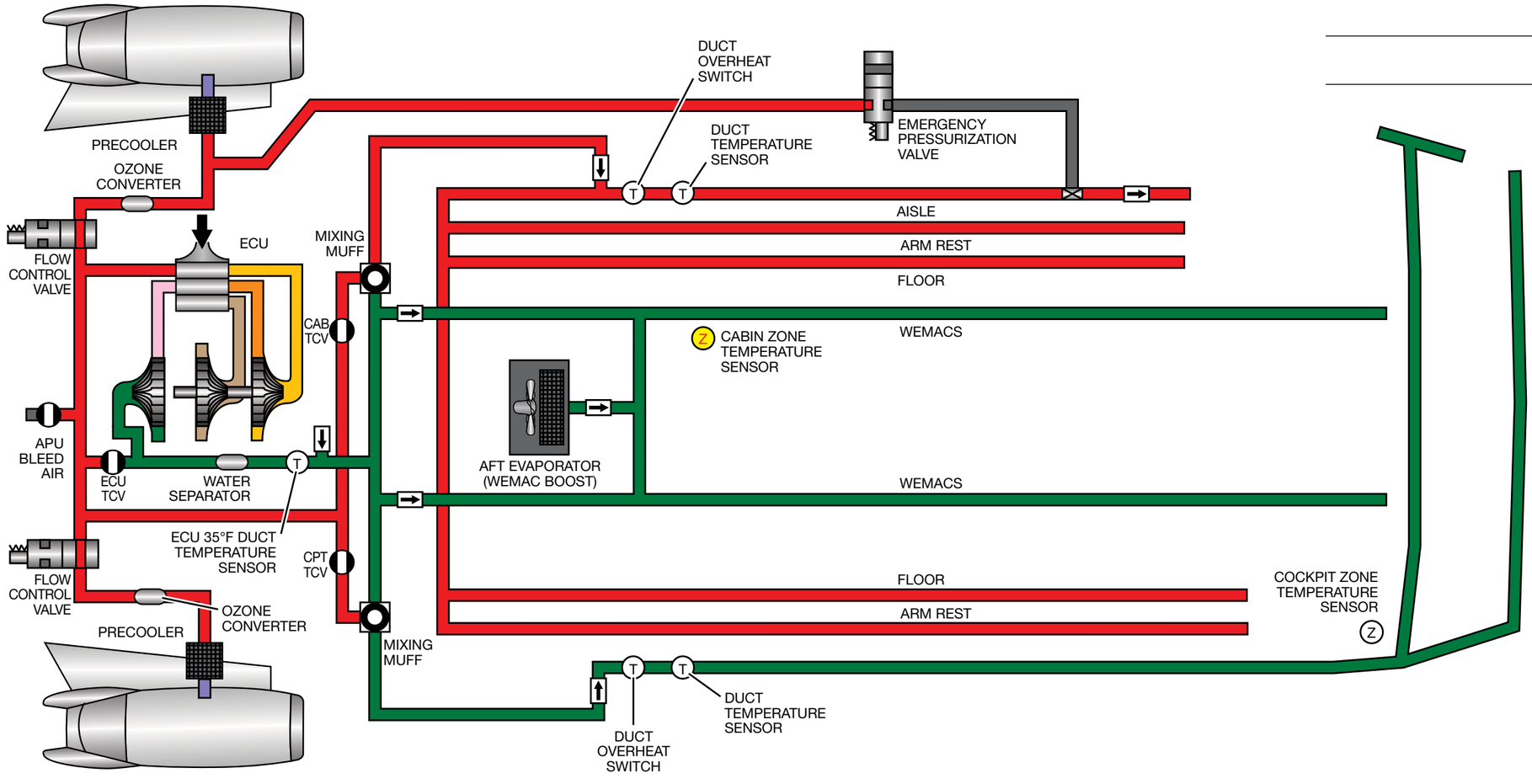


Figure 21-1. Temperature Control (Sheet 4 of 4)

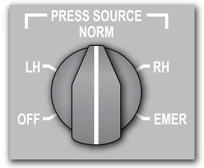
NOTES

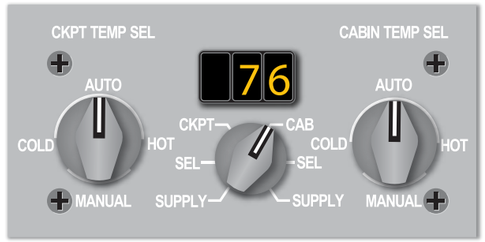
LEGEND

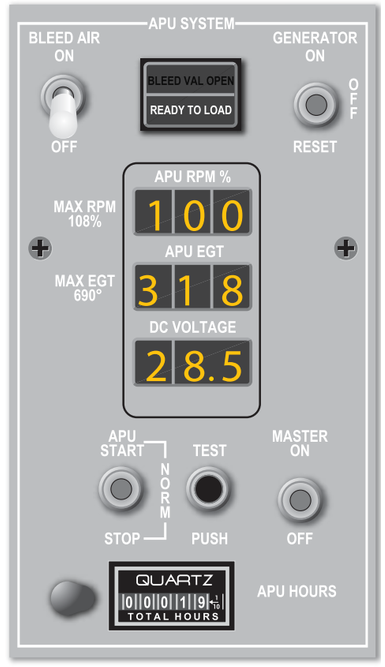
- ENGINE BLEED AIR
- PRECOOLED AIR
- APU BLEED AIR

CONDITION:

ACM—OVERHEAT
LH FLOW CONTROL VALVE—CLOSED
RH FLOW CONTROL VALVE—CLOSED







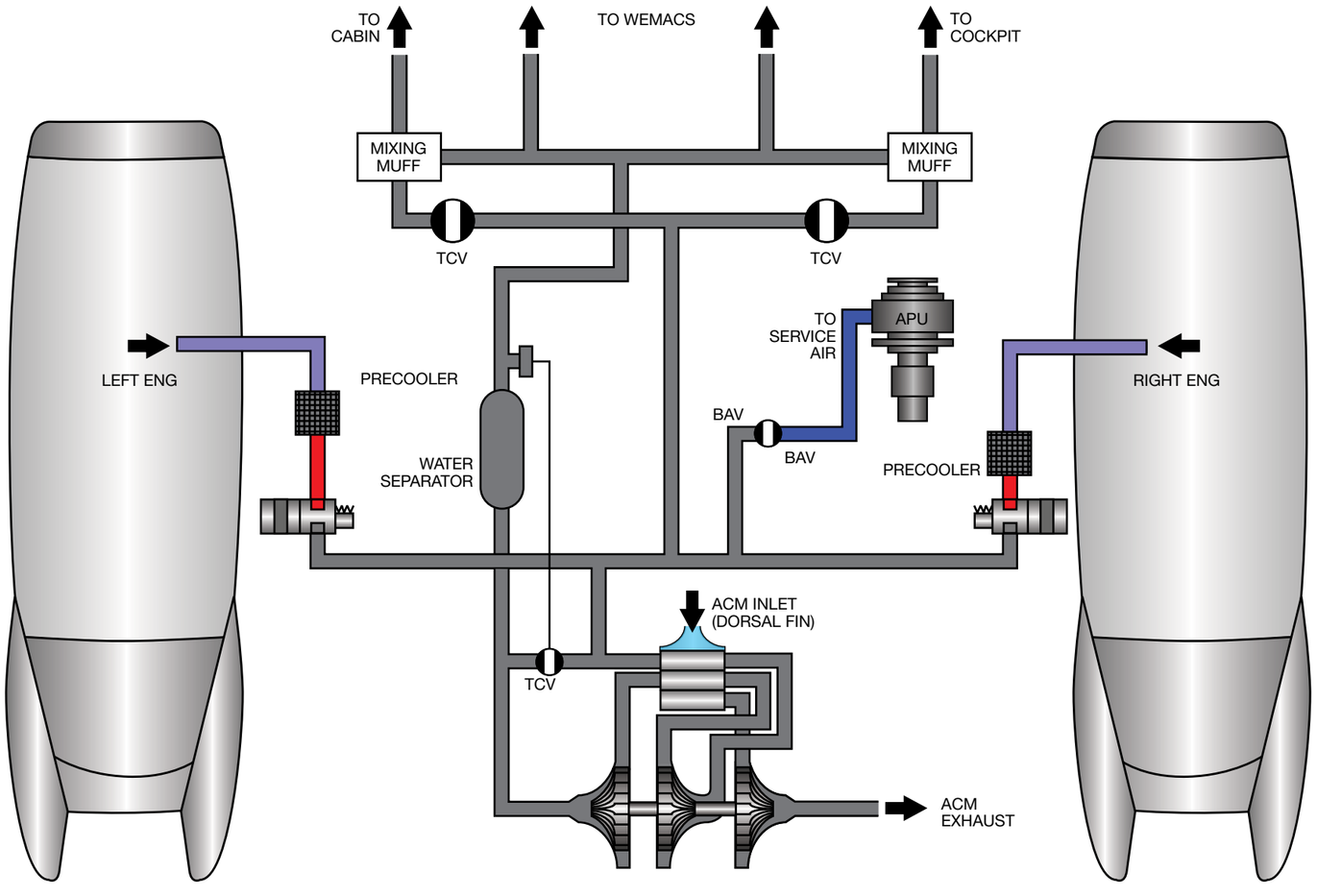


Figure 21-2. Pressurization—ACM Overheat

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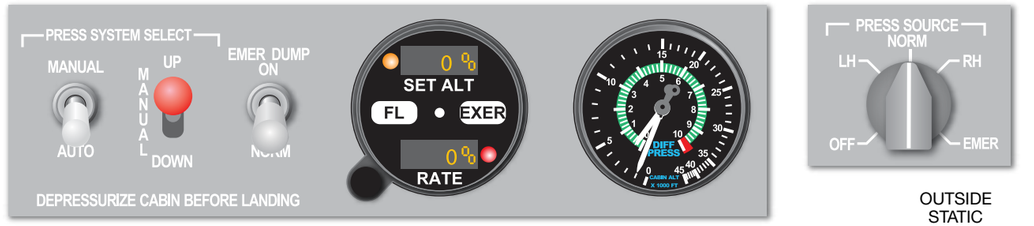

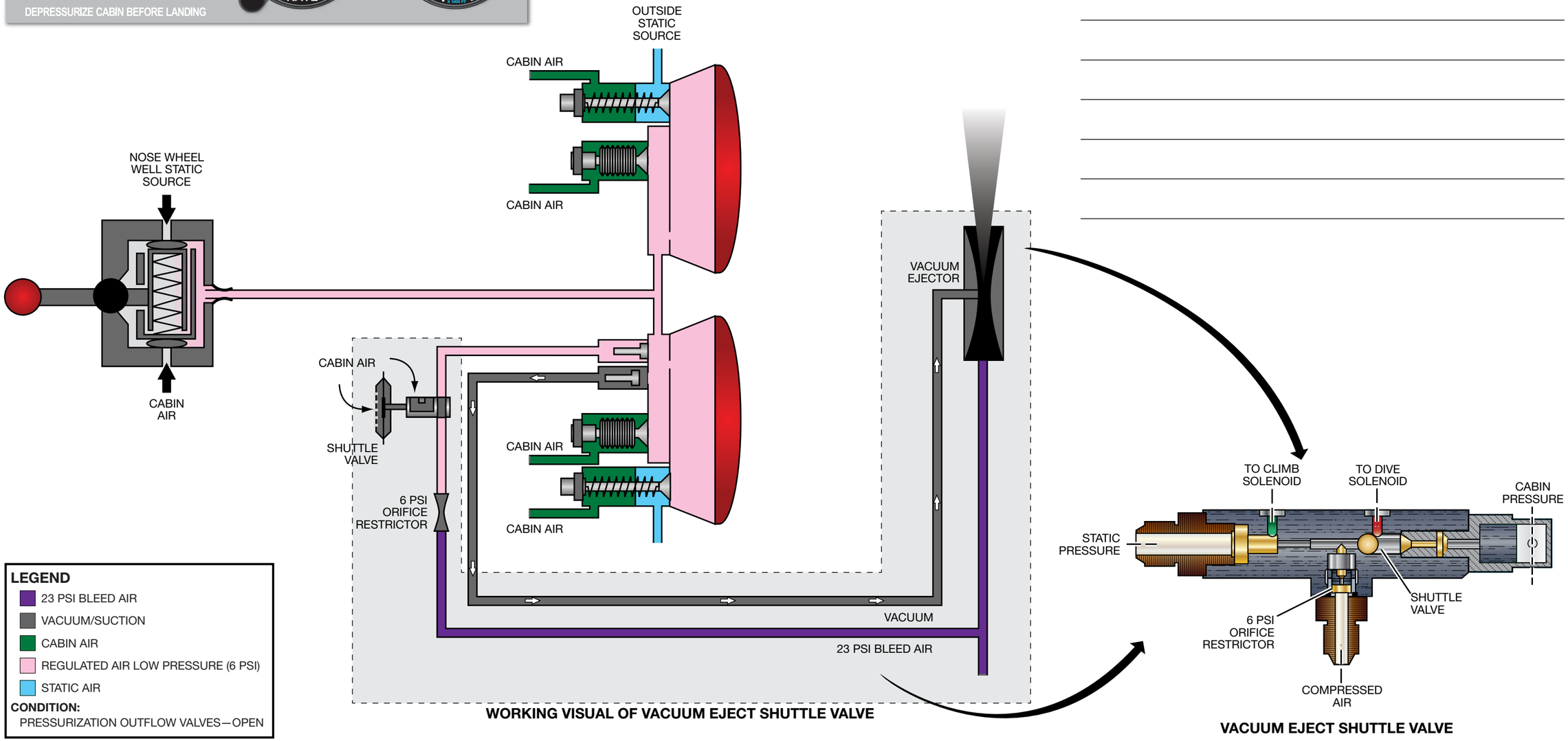

Figure 21-3. Pressurization (Sheet 1 of 2)

NOTES

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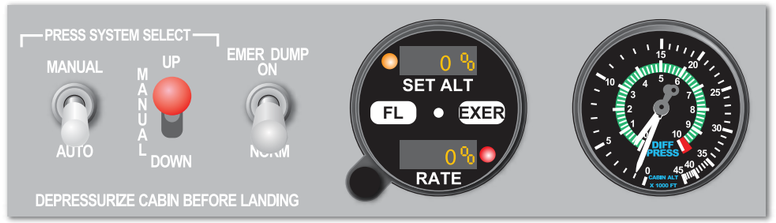
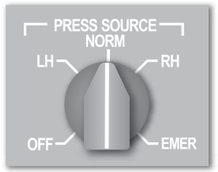




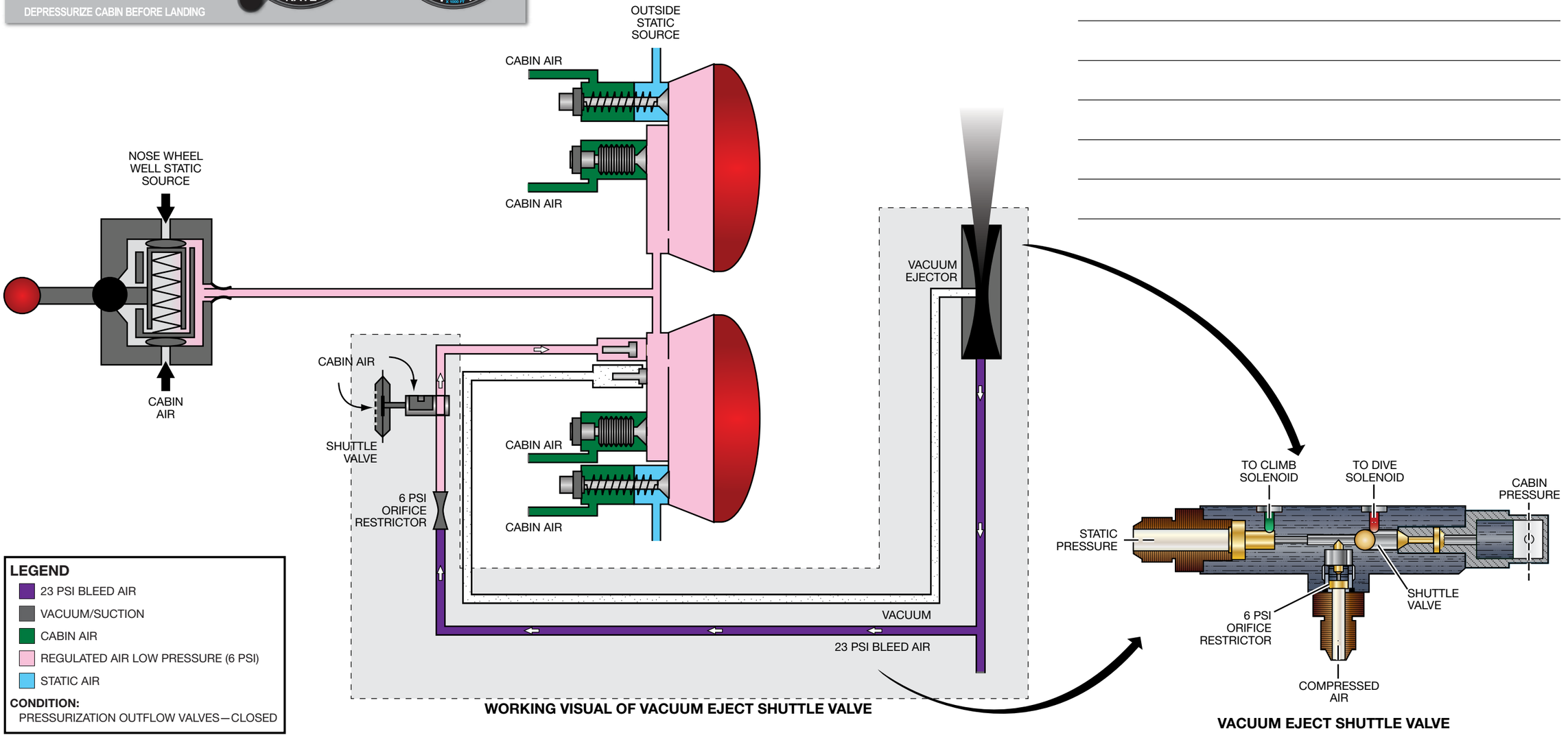
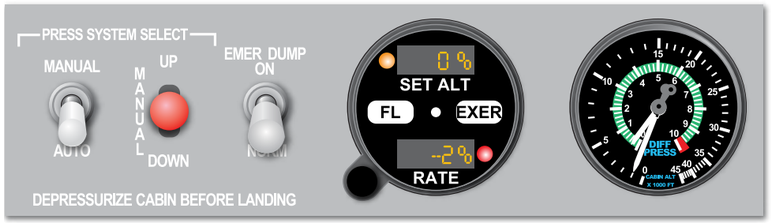
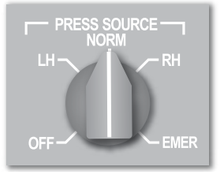
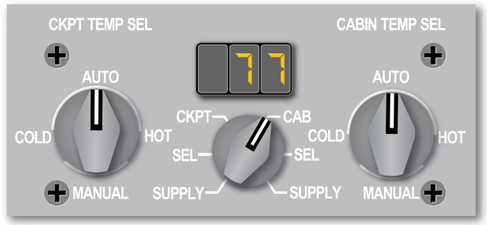


Figure 21-3. Pressurization (Sheet 2 of 2)







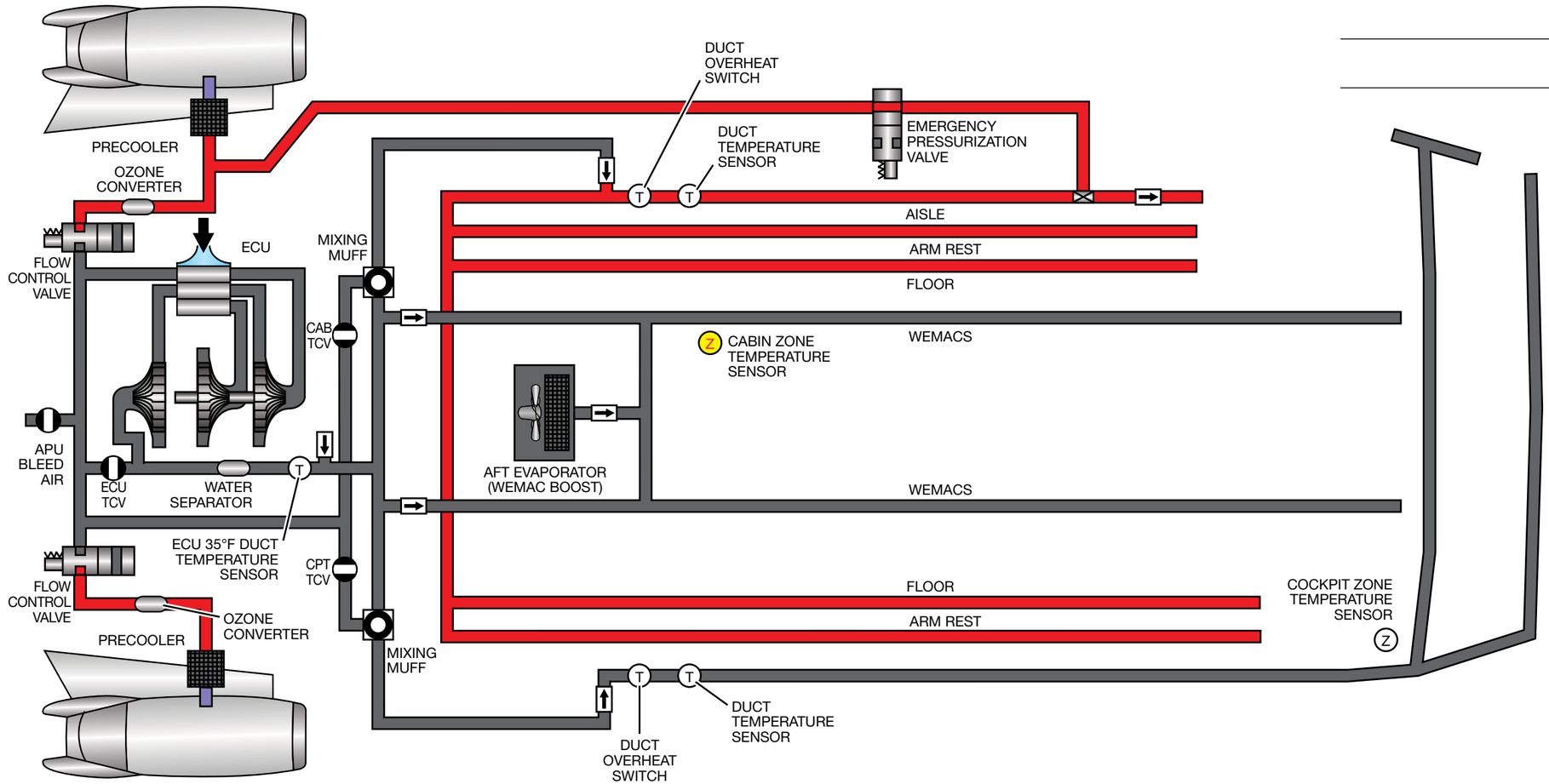


Figure 21-4. Emergency Pressurization (Sheet 1 of 2)

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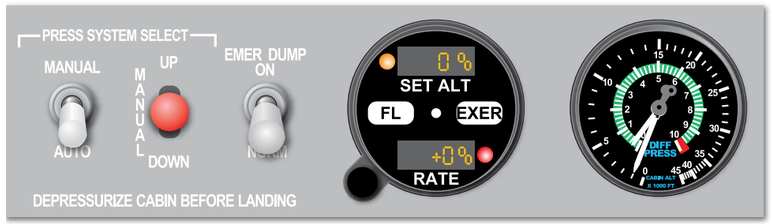

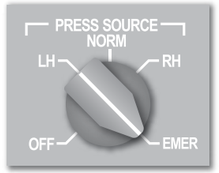

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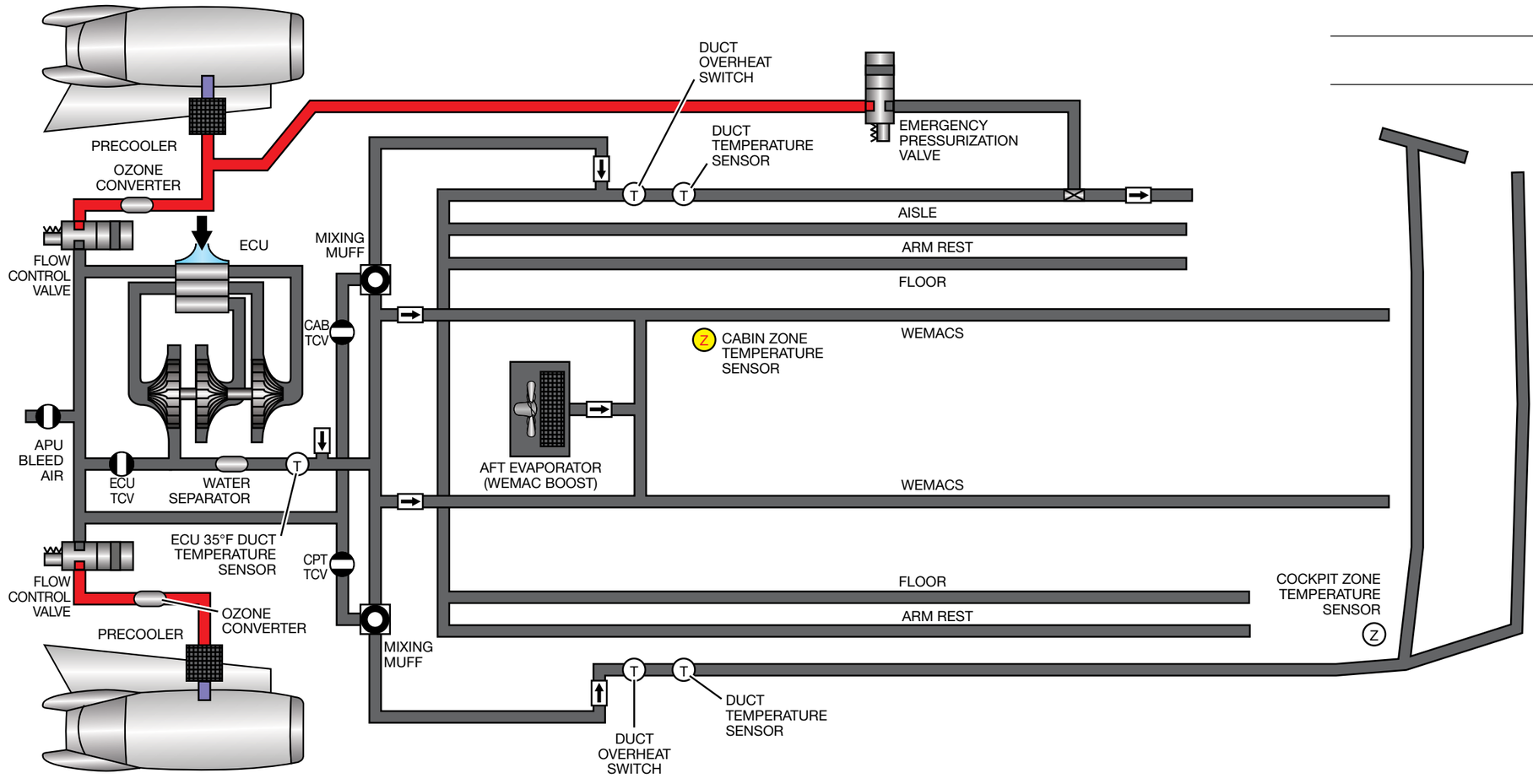


LEGEND

- COLD ACM (TURBINE) DISCHARGE AIR
- ENGINE BLEED AIR
- PRECOOLED AIR
- COMPRESSOR DISCHARGE AIR
- PRIMARY HEAT EXCHANGE AIR
- SECONDARY HEAT EXCHANGE AIR
- ACM EXHAUST
- APU BLEED AIR

CONDITION:
EMER PRESSURIZATION—SELECTED
AIRCRAFT ON GROUND
EMERGENCY PRESSURIZATION VALVE—CLOSED

Figure 21-4. Emergency Pressurization (Sheet 2 of 2)

NOTES

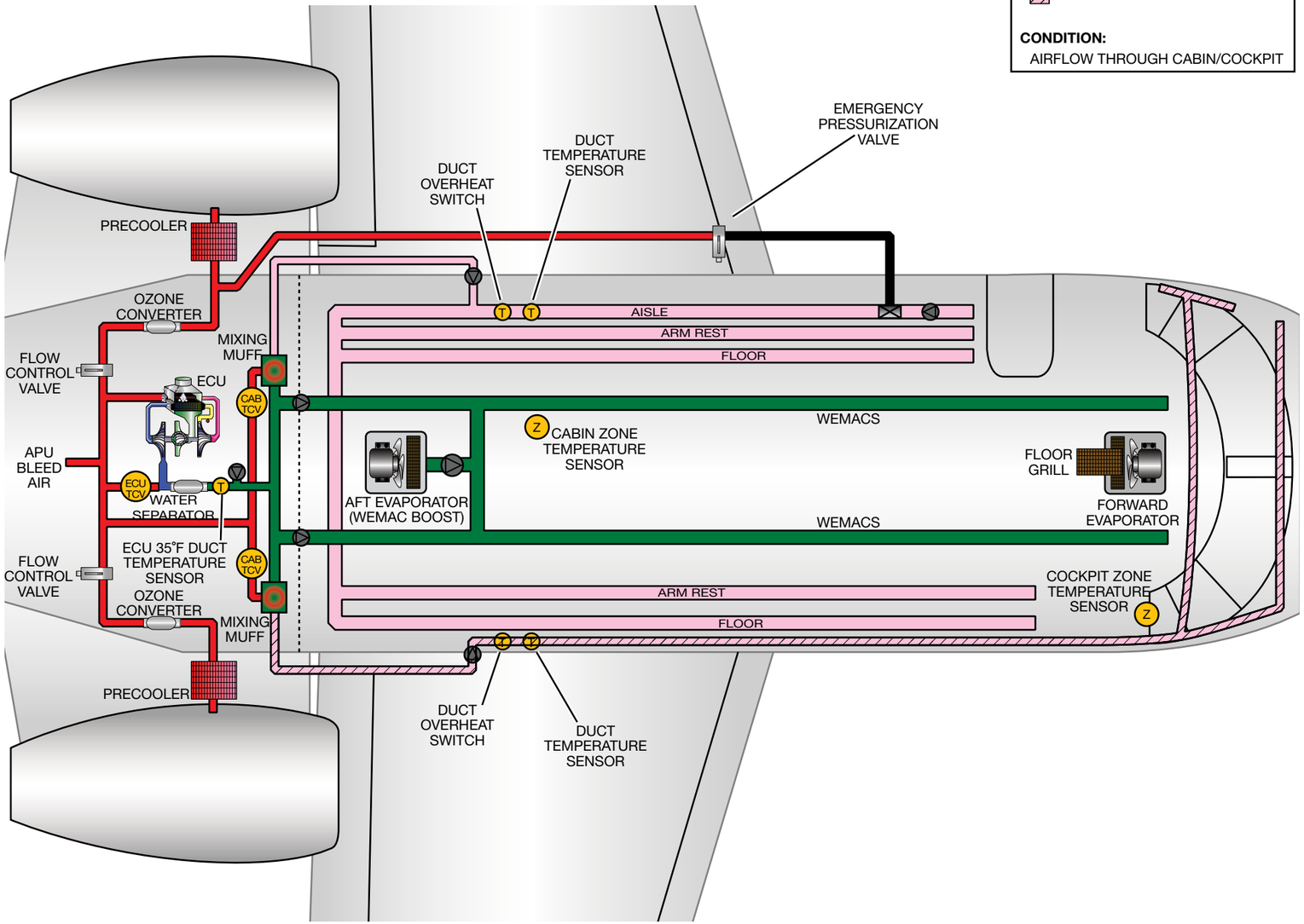


Figure 21-5. Air Distribution Overview Schematic

NOTES

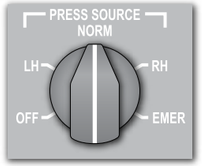
21

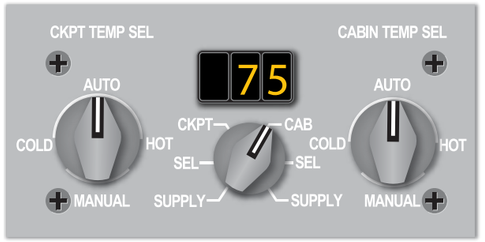
LEGEND

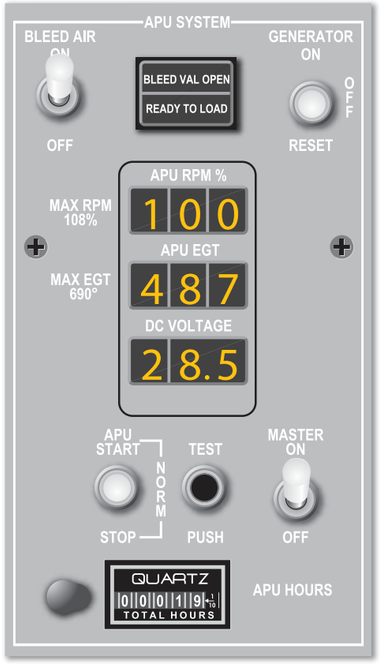
- COLD ACM (TURBINE) DISCHARGE AIR
- ENGINE BLEED AIR
- PRECOOLED AIR
- COMPRESSOR DISCHARGE AIR
- PRIMARY HEAT EXCHANGE AIR
- SECONDARY HEAT EXCHANGE AIR
- ACM EXHAUST
- APU BLEED AIR

CONDITION:

PRESS SOURCE—NORM
APU BLEED—ON







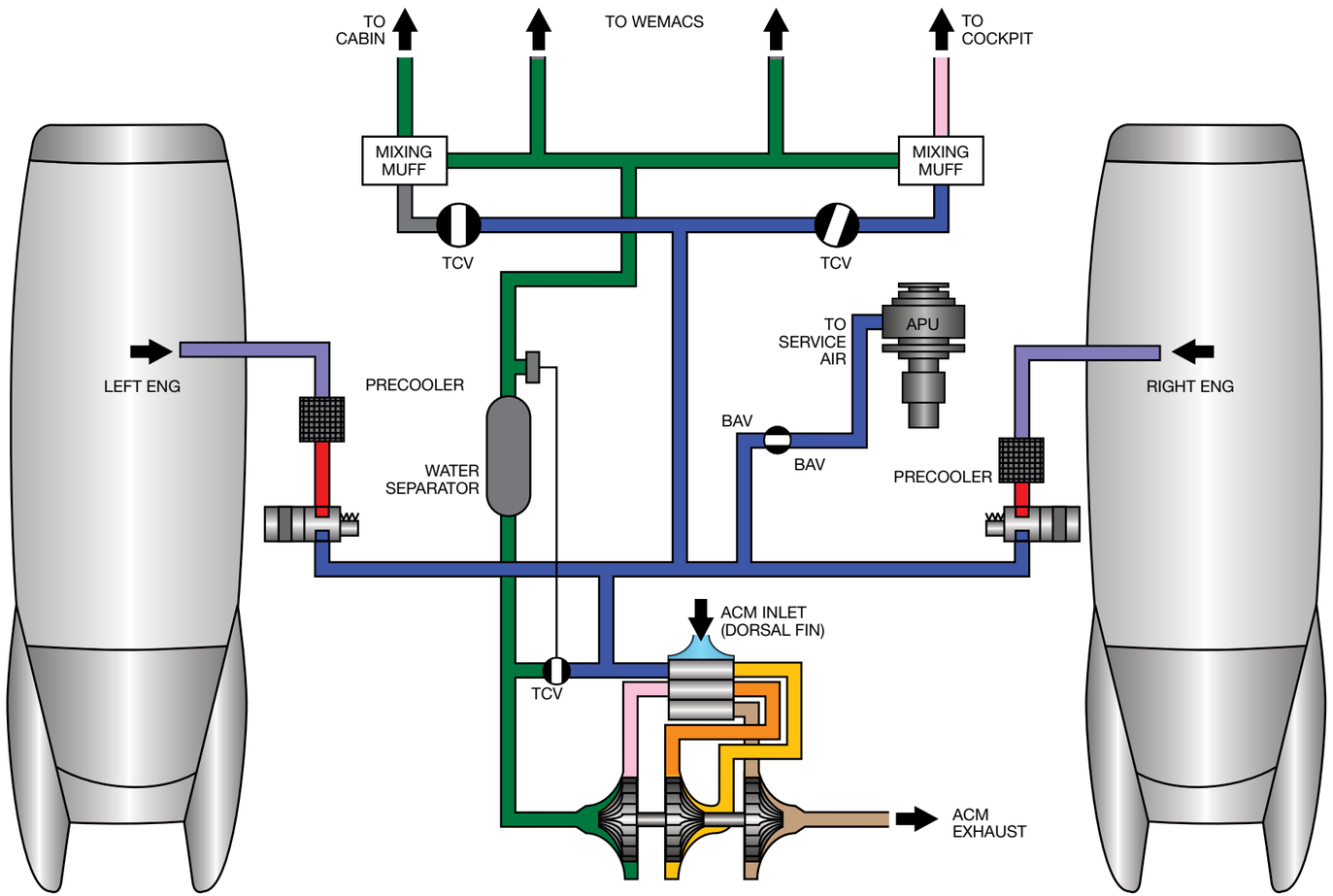


Figure 21-6. Air Distribution Sources

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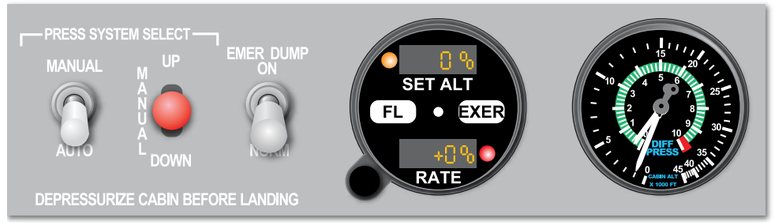

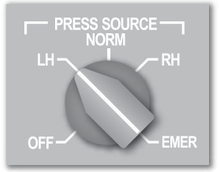

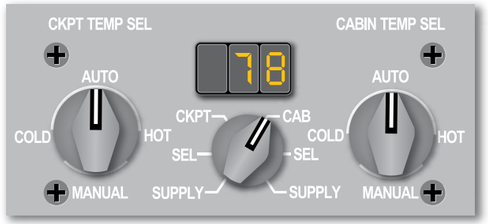

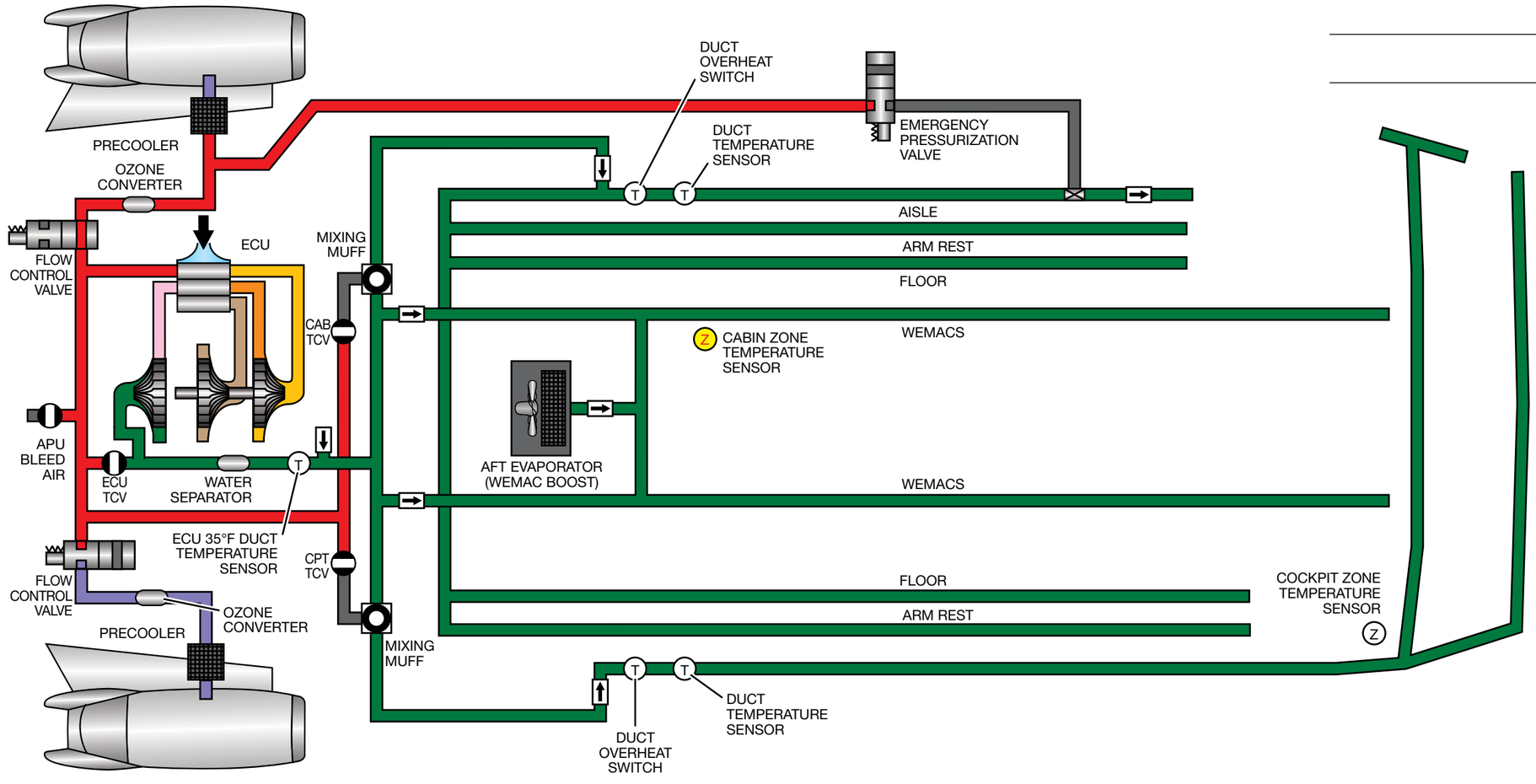

Figure 21-7. Air Distribution (Sheet 1 of 3)

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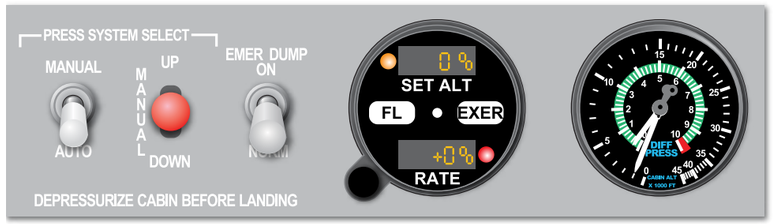

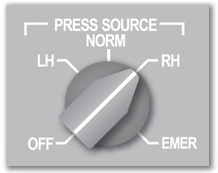

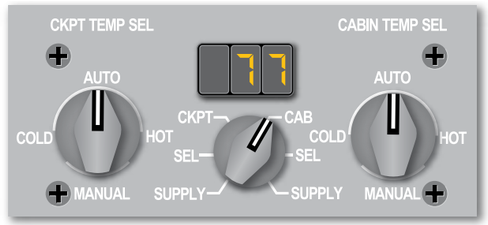

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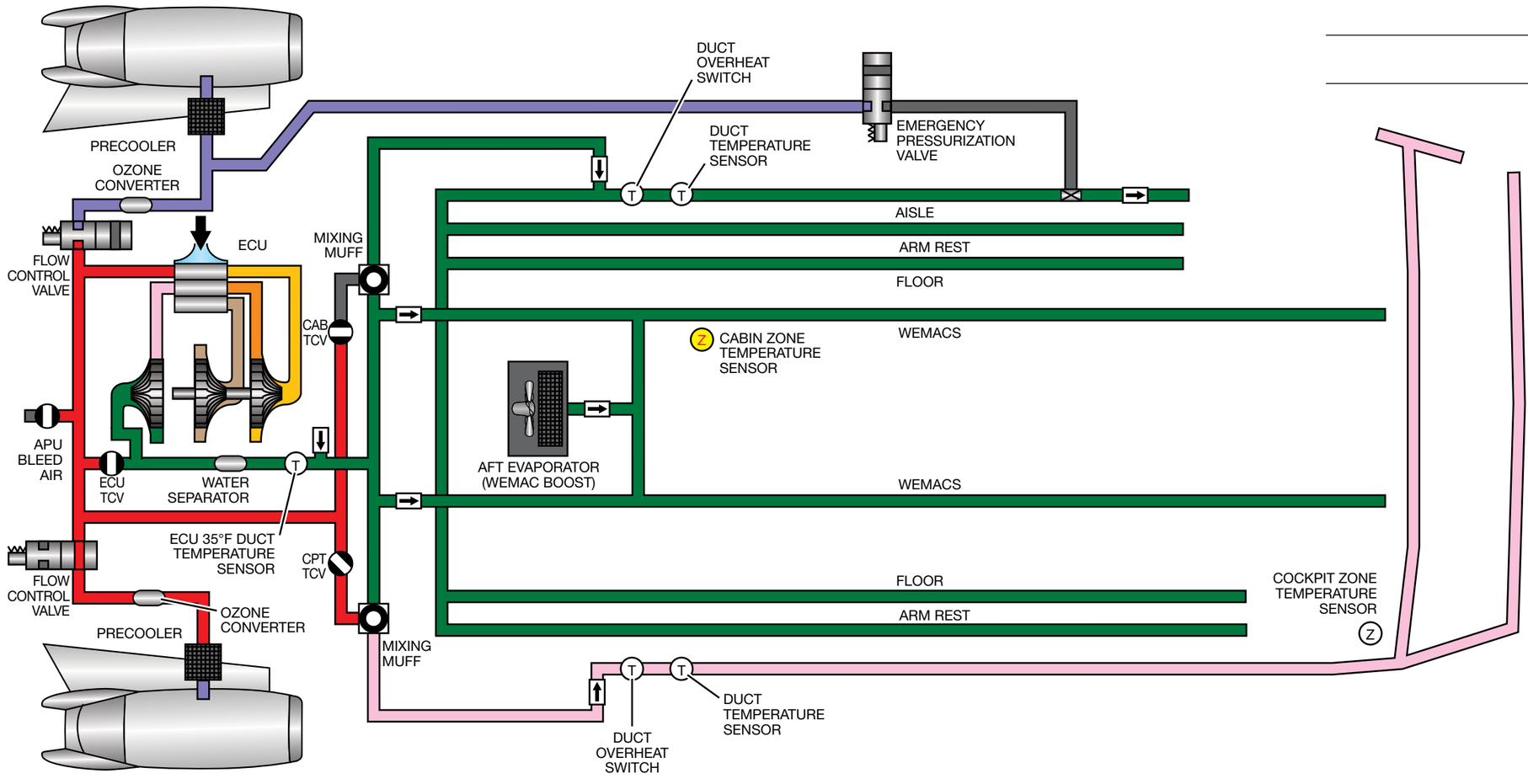
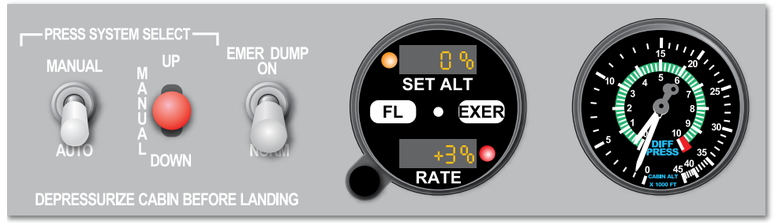
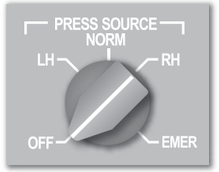
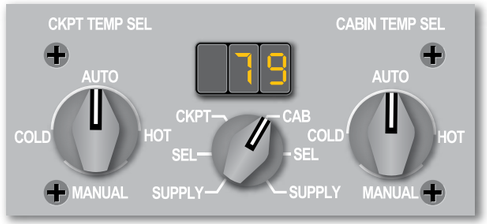


Figure 21-7. Air Distribution (Sheet 2 of 3)







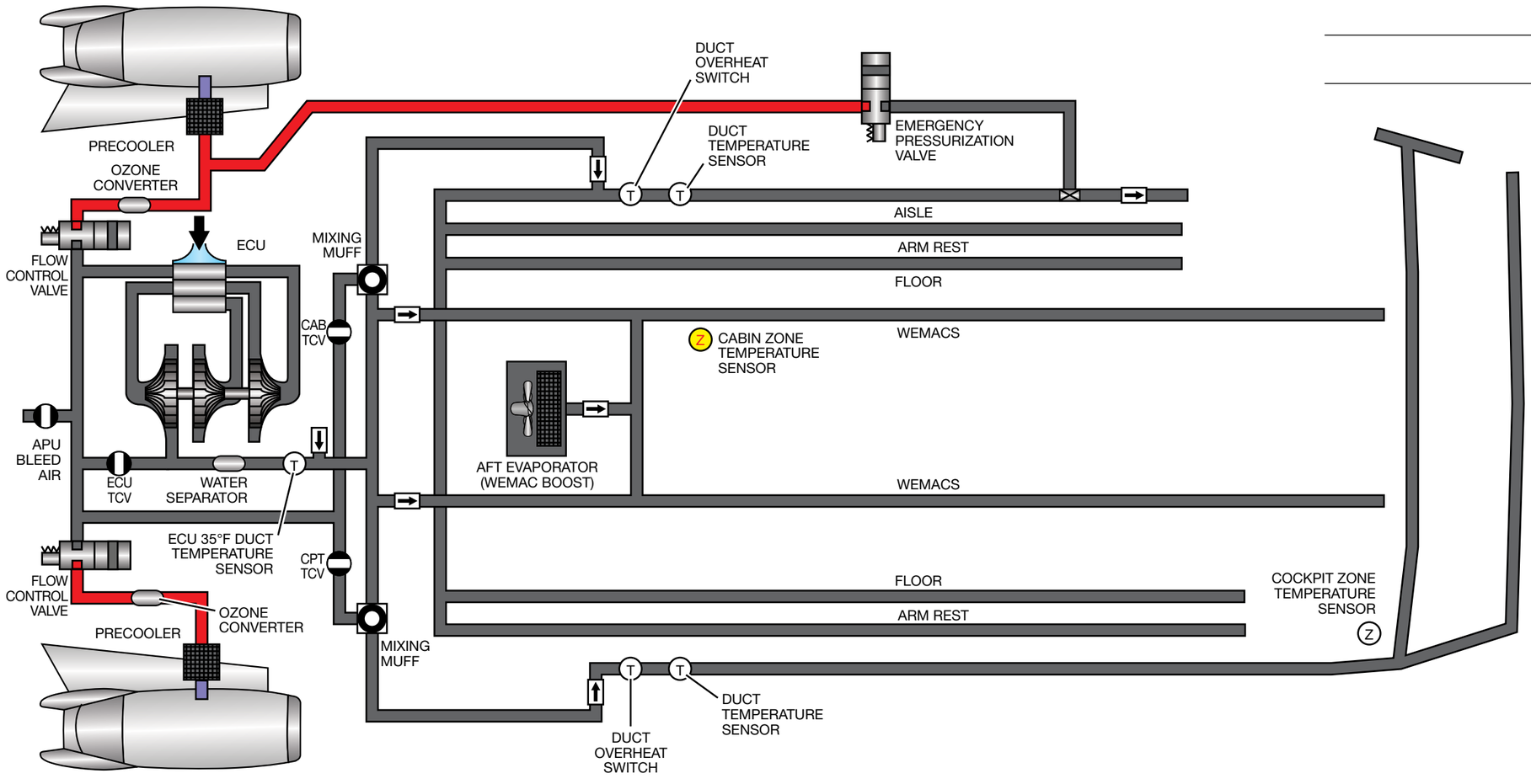


Figure 21-7. Air Distribution (Sheet 3 of 3)

NOTES

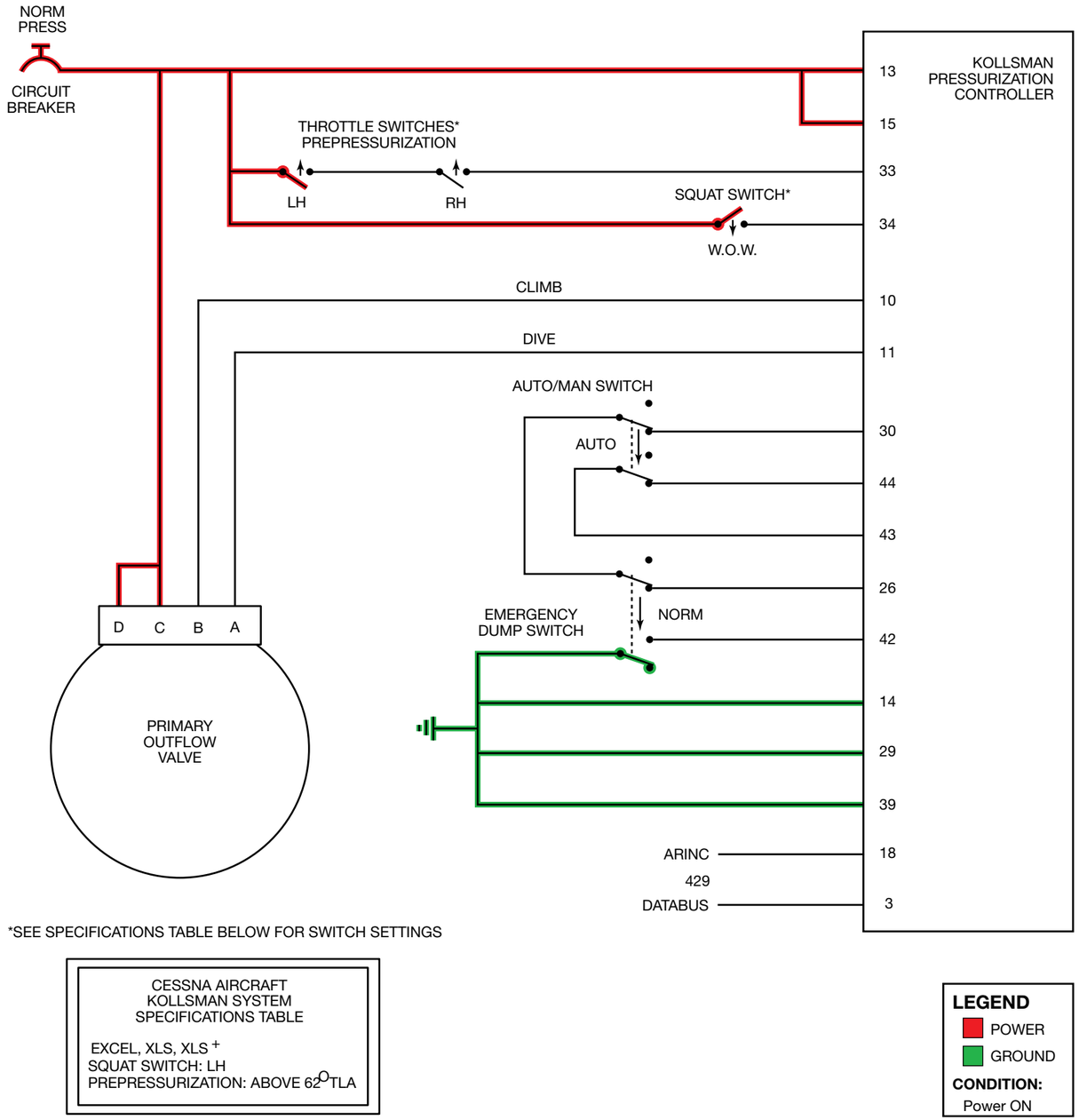
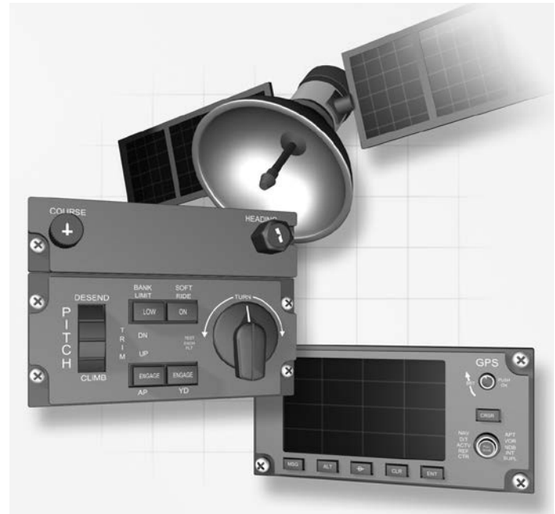


Figure 21-8. Kollsman Pressurization System

NOTES

CHAPTER 22 AUTO FLIGHT



INTRODUCTION

The autopilot section describes the portion of the system controlling the flight path of the airplane through adjustment to pitch, roll, or yaw, autopilot servos and associated cables. This section provides maintenance information on the autopilot servo, autopilot controller, servo bracket, cable drum, and servo cables. Individual servos are installed to control aileron, rudder, and elevator surface positions. The autopilot system is integrated with the flight director.

AUTOMATIC FLIGHT CONTROL SYSTEM (XL/XLS)

The automatic flight control system (AFCS) consists of two IC-600 display guidance computers—one MS-560 flight director/autopilot mode selector, one PC-400 autopilot controller and three flight control SM200 servos (pitch, roll and yaw).

Features of the autopilot system include:

- Yaw damping
- Elevator trim
- Heading hold
- Pitch hold
- Bank limit modes
- Touch-control-steering

The coupling of flight director modes with autopilot engagement is also featured.

Three flight maneuvering options are available to the pilot, manual operation, automatic operation or manual control using the autopilot.

AUTOMATIC FLIGHT CONTROL SYSTEM (XLS+)

The Collins flight guidance system has a FGP-3000 flight guidance panel (FGP) that is installed in the upper center instrument panel in the fire tray. The FGP has lateral and vertical mode selection switches, heading and course control knobs, a speed knob, an altitude alert/altitude preselect knob, a VS pitch control wheel, and autopilot and yaw damper controls. The autopilot and yaw damper controls include autopilot engage, yaw damper engage, couple switch, and yaw damper/autopilot disconnect. The FGP also has dual flight director controls.

The FGC-3000 flight guidance computer modules are a component of the integrated avionics processor system (IAPS) that is installed inside the ICC- 31 11 integrated card cage (ICC) in the right side nose avionics compartment. The FGC modules control the data for the Collins flight guidance system. The FGC modules send the commands to the aileron, elevator, and rudder autopilot servos for the three-axis autopilot control.

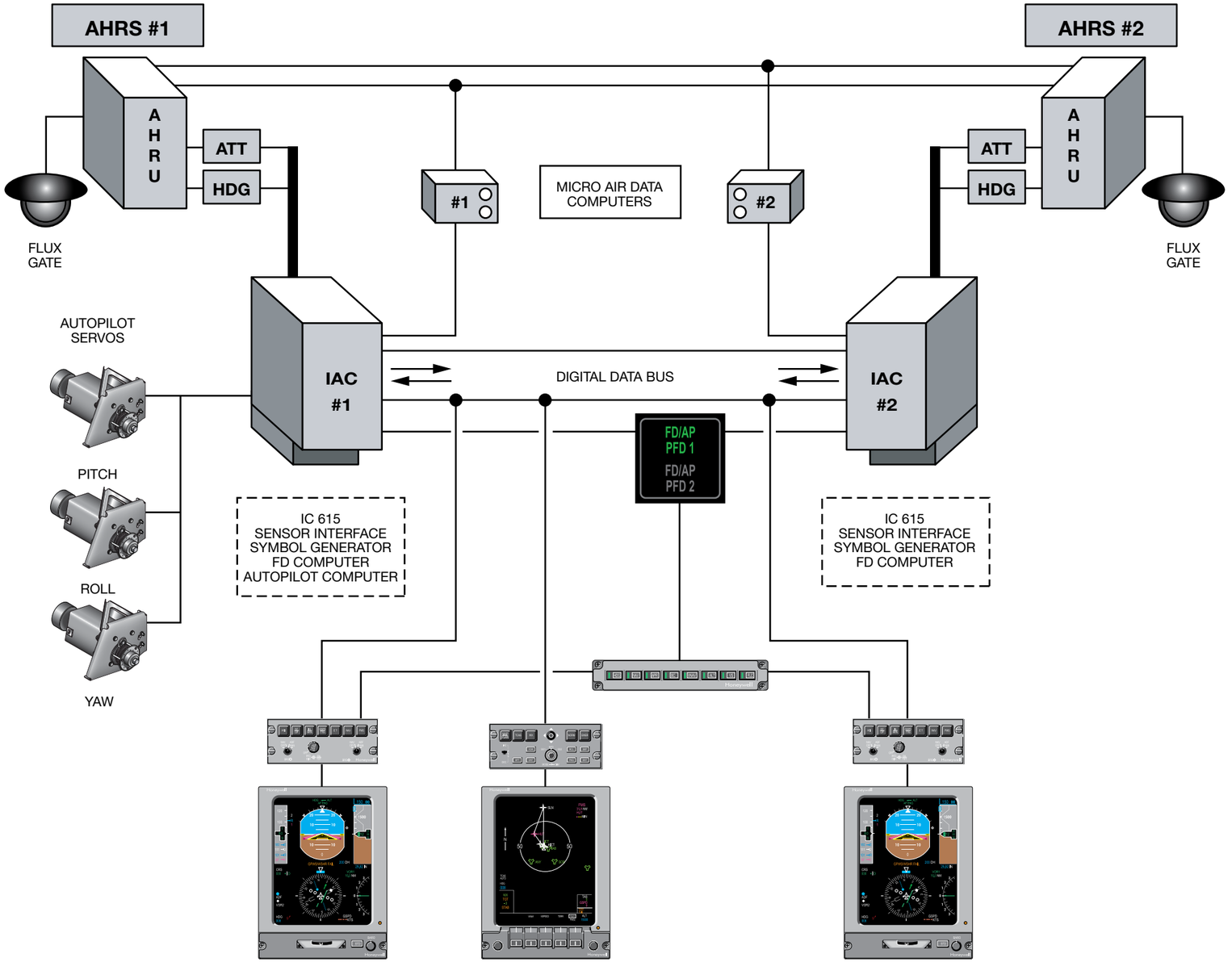


Figure 22-1. Primus 1000 Block Diagram (XL/XLS)

NOTES

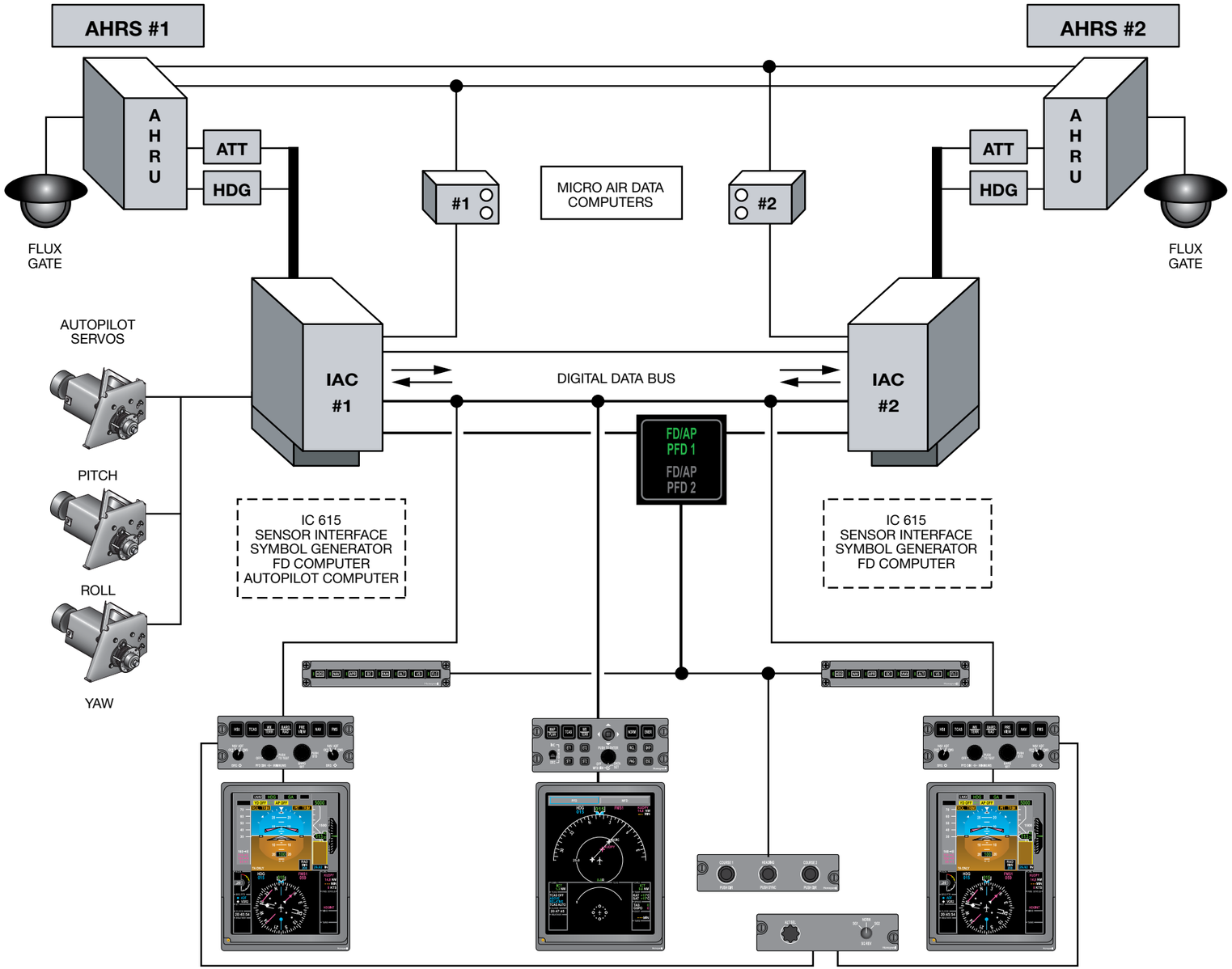


Figure 22-2. Primus 1000 Block Diagram (XLS 5500 thru 6000)

NOTES

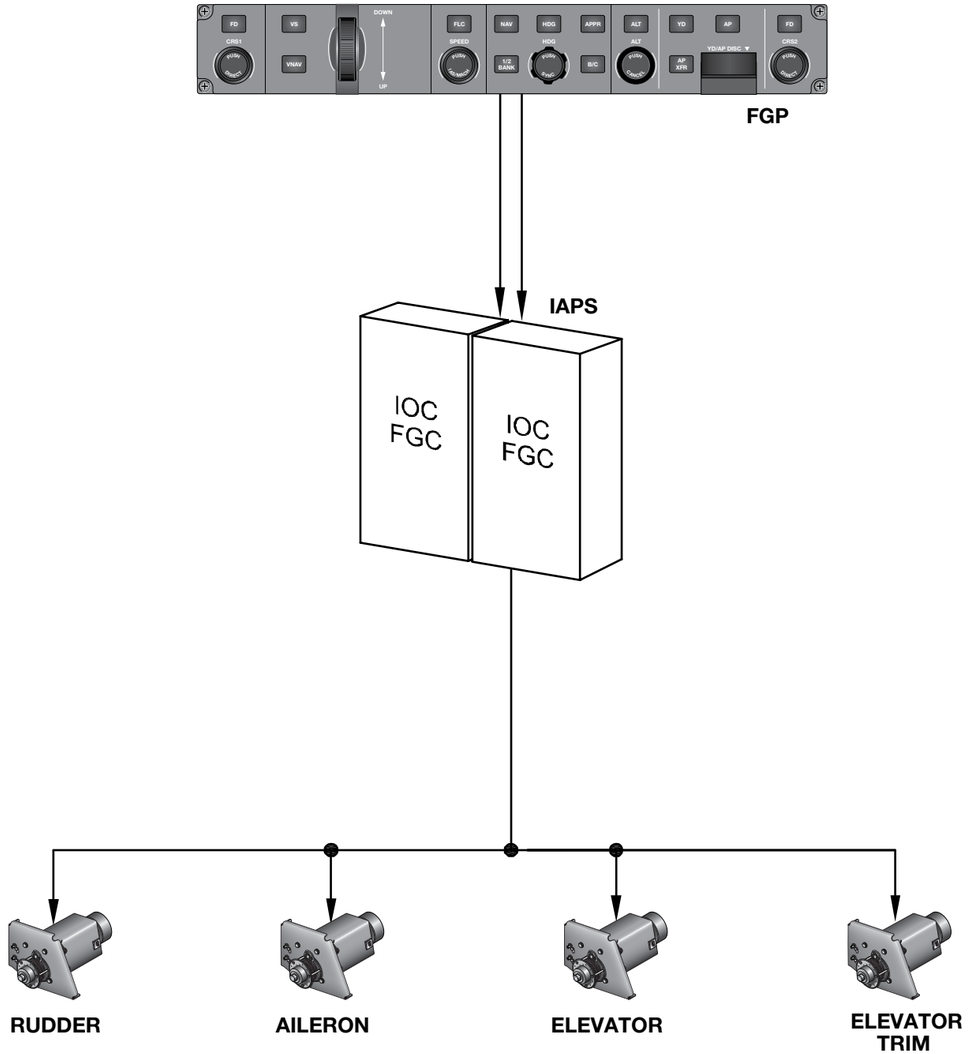


Figure 22-3. Autoflight System Block Diagram (XLS+)

NOTES

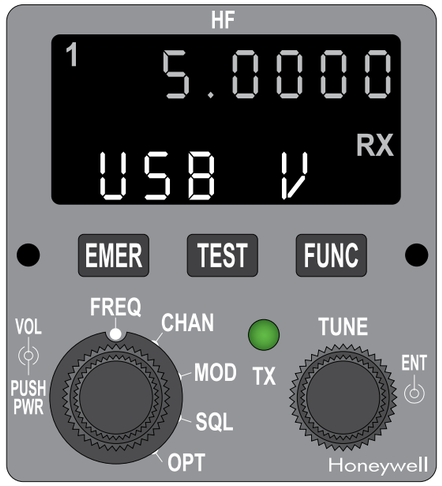
CHAPTER 23
COMMUNICATIONS

INTRODUCTION

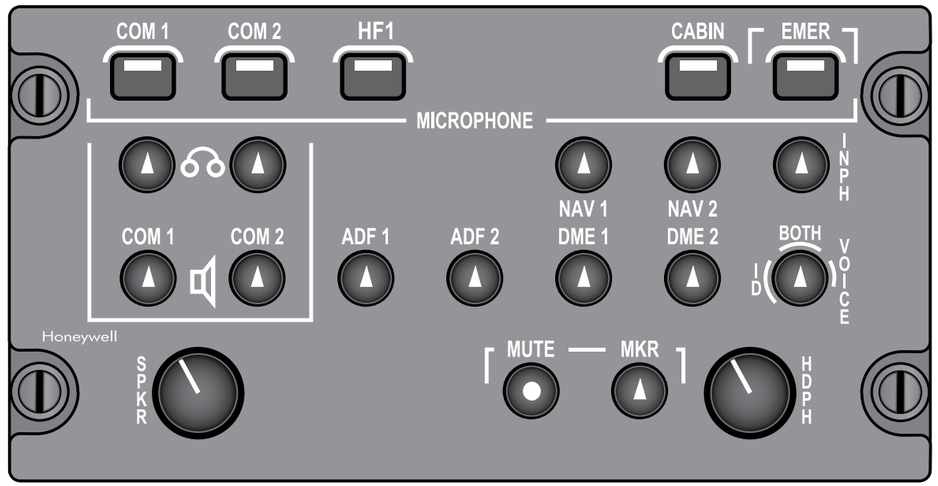
This chapter describes and provides maintenance information for systems and components that furnish a means of communicating from one part of the aircraft to another, or between the aircraft and other aircraft or ground stations. Also included are the passenger address and voice recording systems. Each Model 560 Excel aircraft is delivered with a complete set of avionics wiring diagrams. These diagrams, which are to be carried aboard the aircraft, must be used in conjunction with this manual when performing maintenance on aircraft. Technical publications, available from manufacturers of components and systems, must be utilized as required for maintenance of those components and systems.

GENERAL

Various antennas are used on the model 560XL/XLS for navigation and communications. The aircraft has a high frequency system to provide long range communications, a digital telecommunications system, an automatic flight information system (AFIS), passenger address, and entertainment systems. Information is also provided on the audio integrating system, static discharging system, cockpit voice recorder, and integrated radio system.



STANDBY NAV/COM CONTROL UNIT (RMU CD-850)

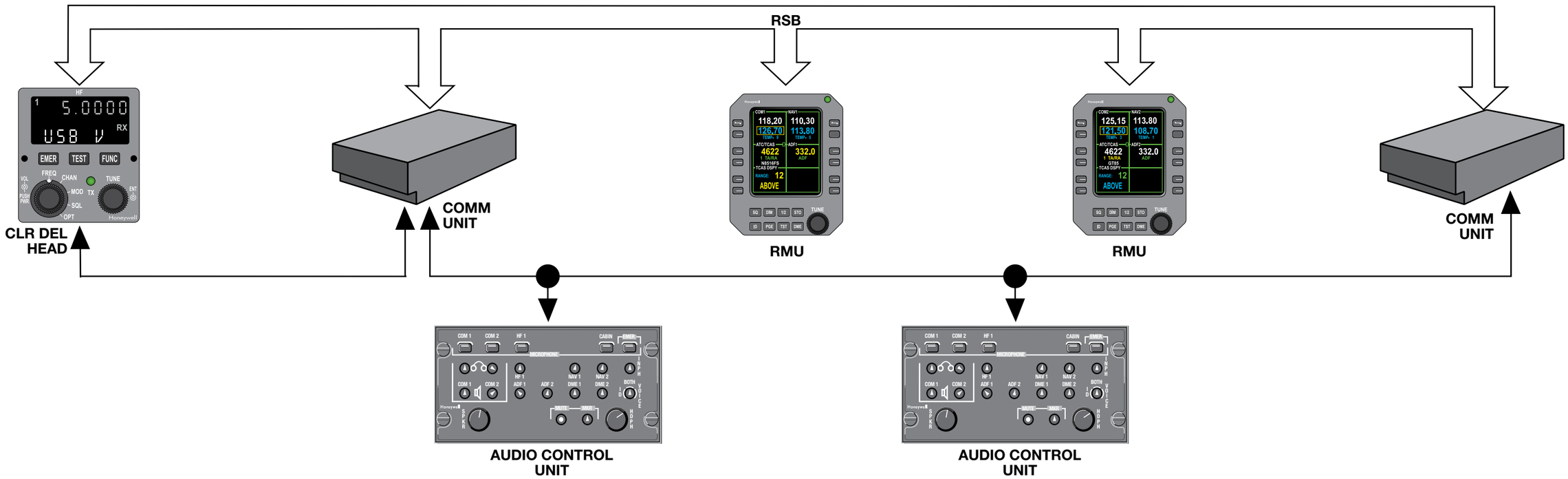


AUDIO CONTROL PANEL (LEFT AND RIGHT SIDE)

RADIO MANAGEMENT UNIT (RM-850)
(LEFT AND RIGHT SIDE)

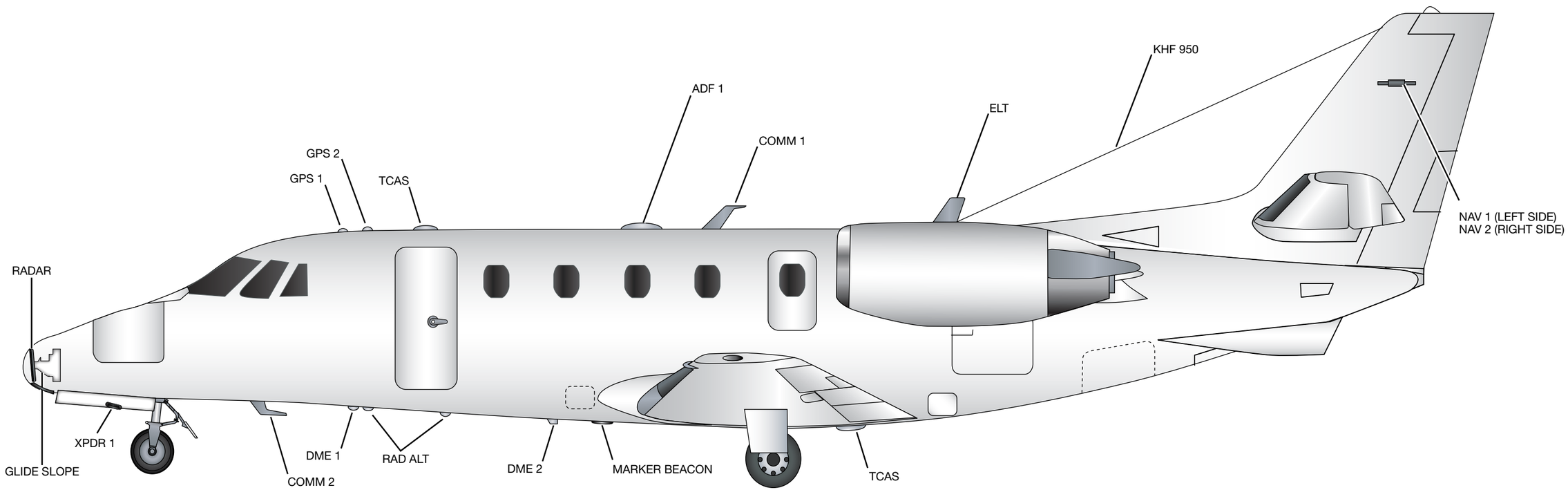
Figure 23-1. Communications Controls (XL/XLS)

NOTES



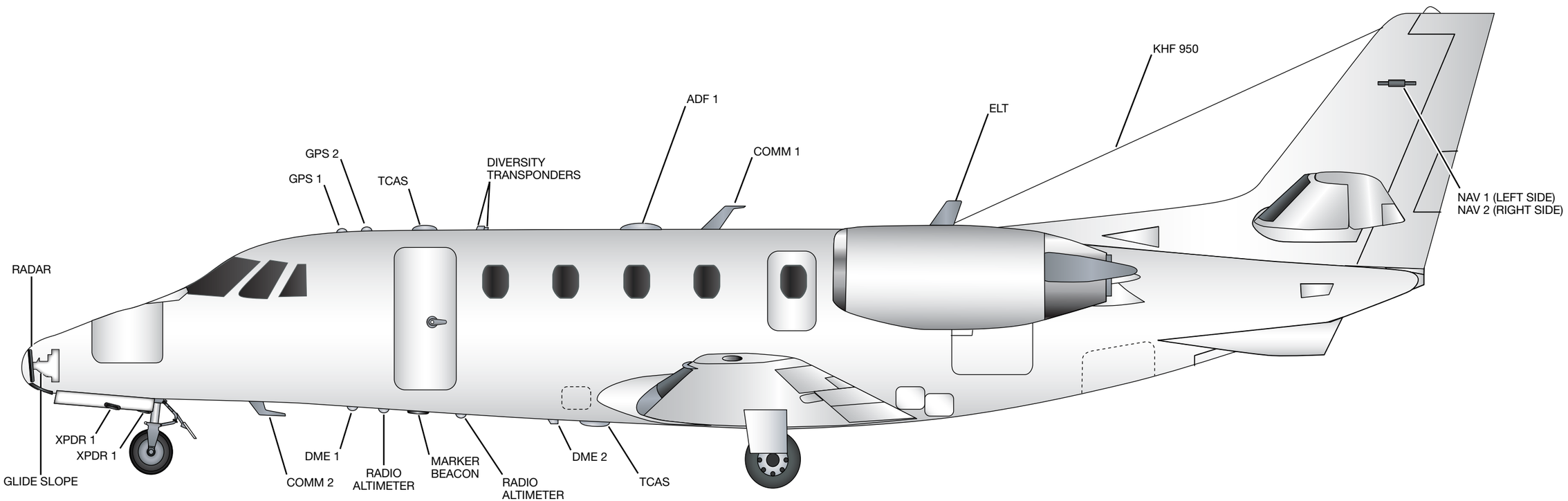
NOTES

Figure 23-2. Communications Block Diagram (XL/XLS)



NOTES

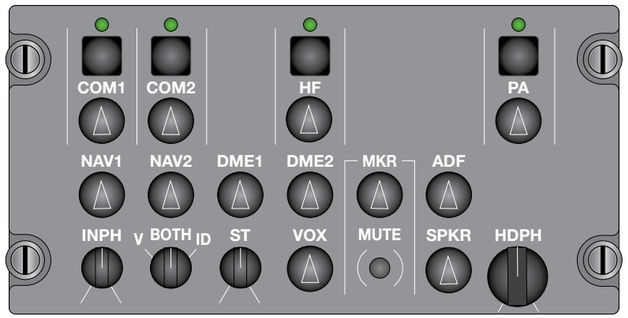
Figure 23-3. Antenna Locations (XL)



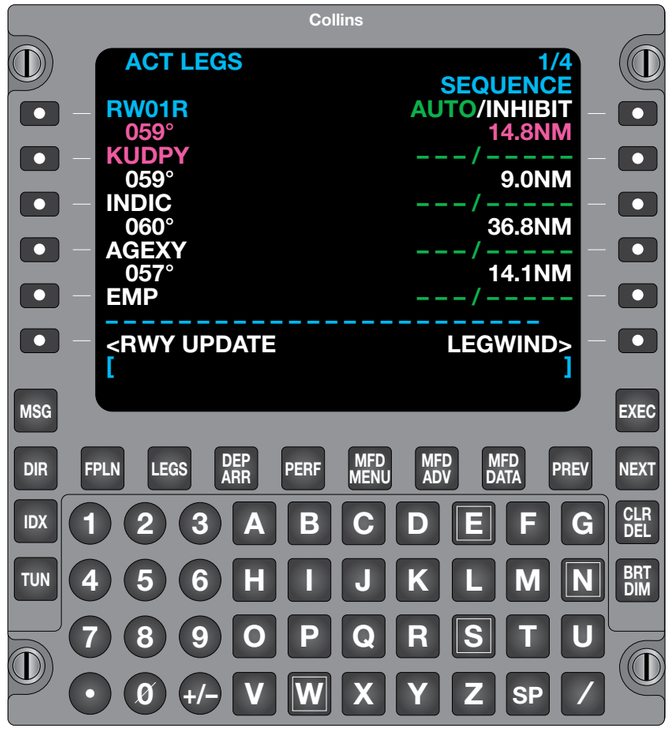
NOTES

Figure 23-4. Antenna Locations (XLS)

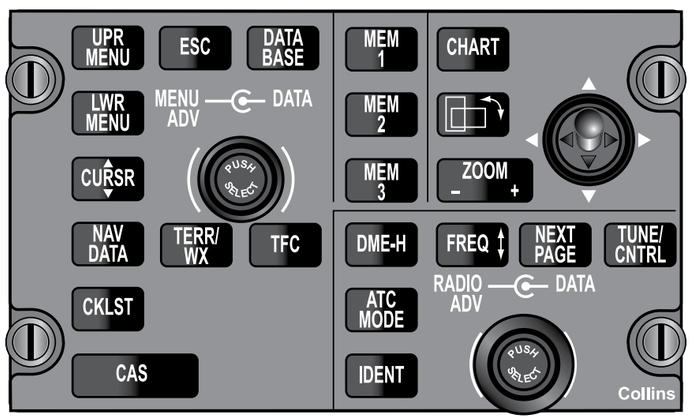
BACKUP RADIO CONTROL (CTL-23D)



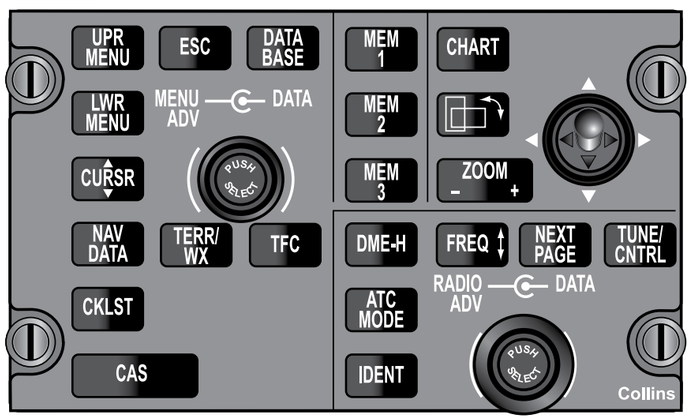
AUDIO CONTROL PANEL (ACP-4130)
(ONE ON LEFT AND RIGHT PANEL)



CENTRAL DISPLAY UNIT (CDU-3000)
(2ND UNIT OPTIONAL)



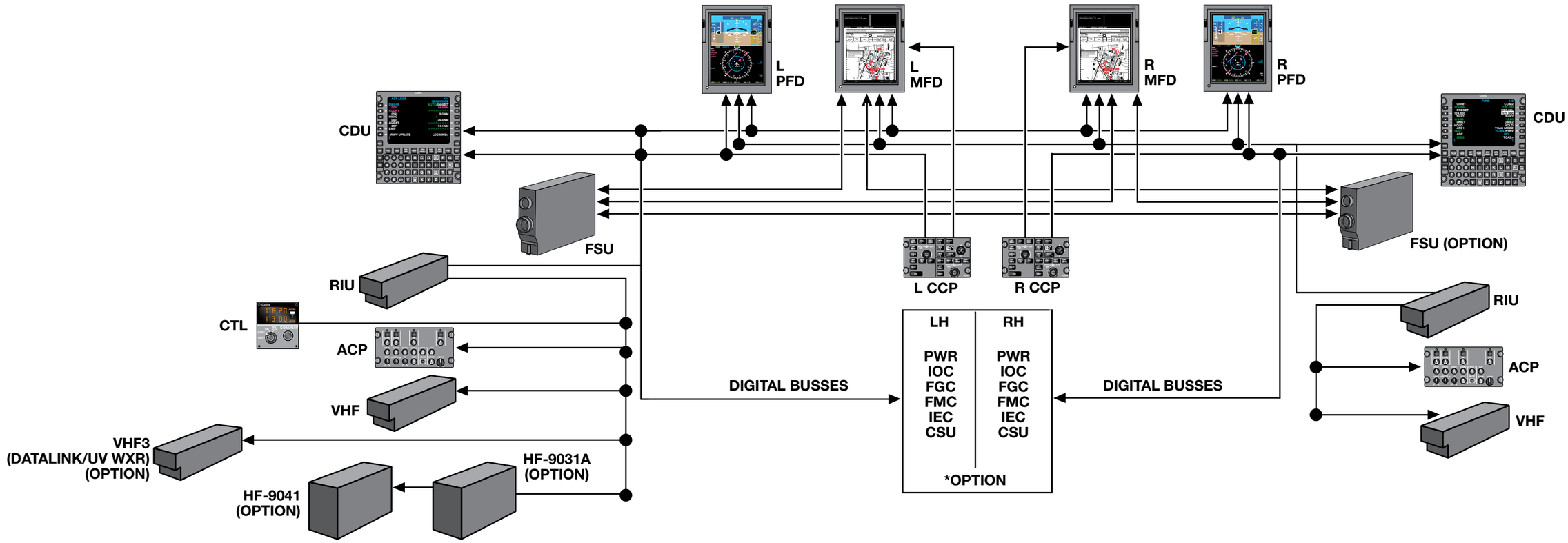
CURSER CONTROL PANEL (CCP)
(LEFT MFD CONTROLLER)



CURSER CONTROL PANEL (CCP)
(RIGHT MFD CONTROLLER)

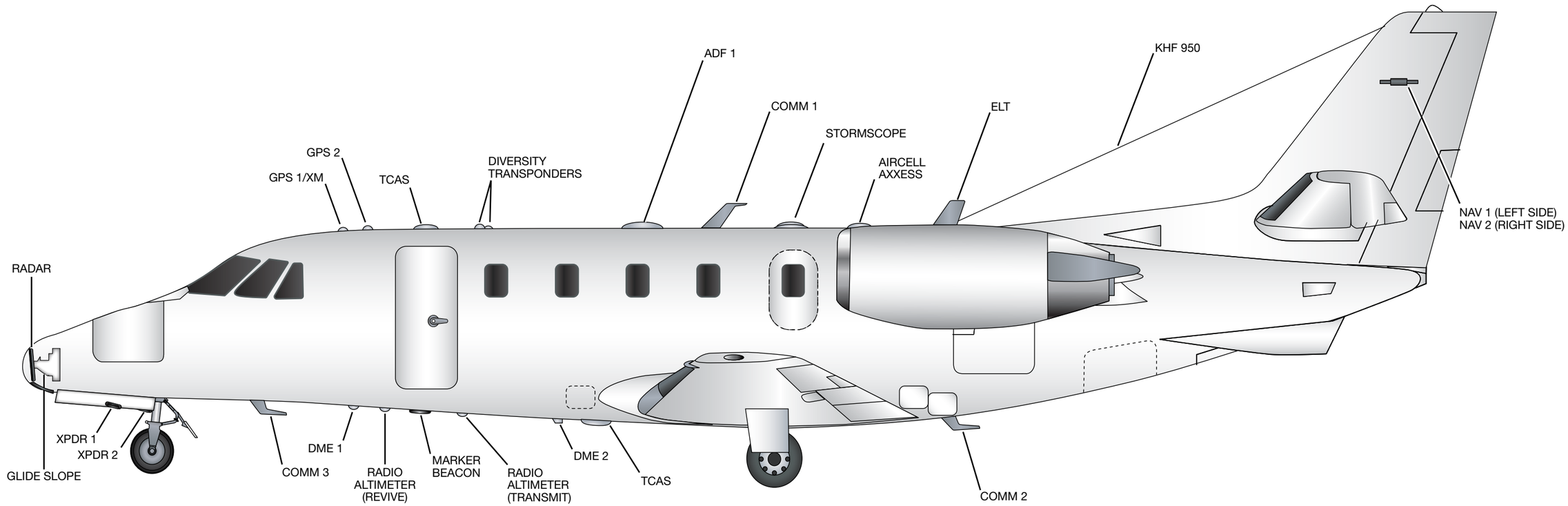
Figure 23-5. Communications Controls (XLS+)

NOTES



NOTES

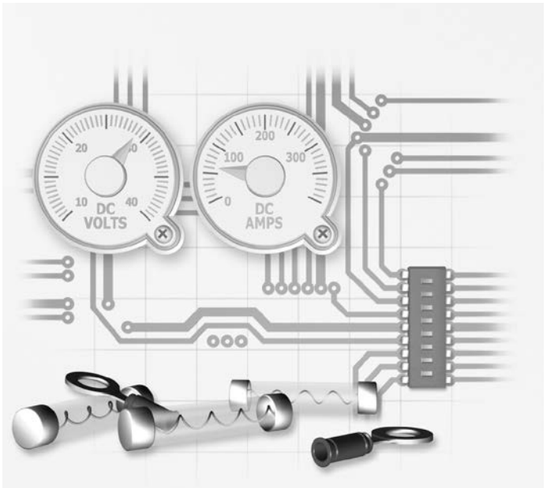
Figure 23-6. Communications Block Diagram (XLS+)



NOTES

Figure 23-7. Antenna Locations (XLS+)

CHAPTER 24
ELECTRICAL POWER



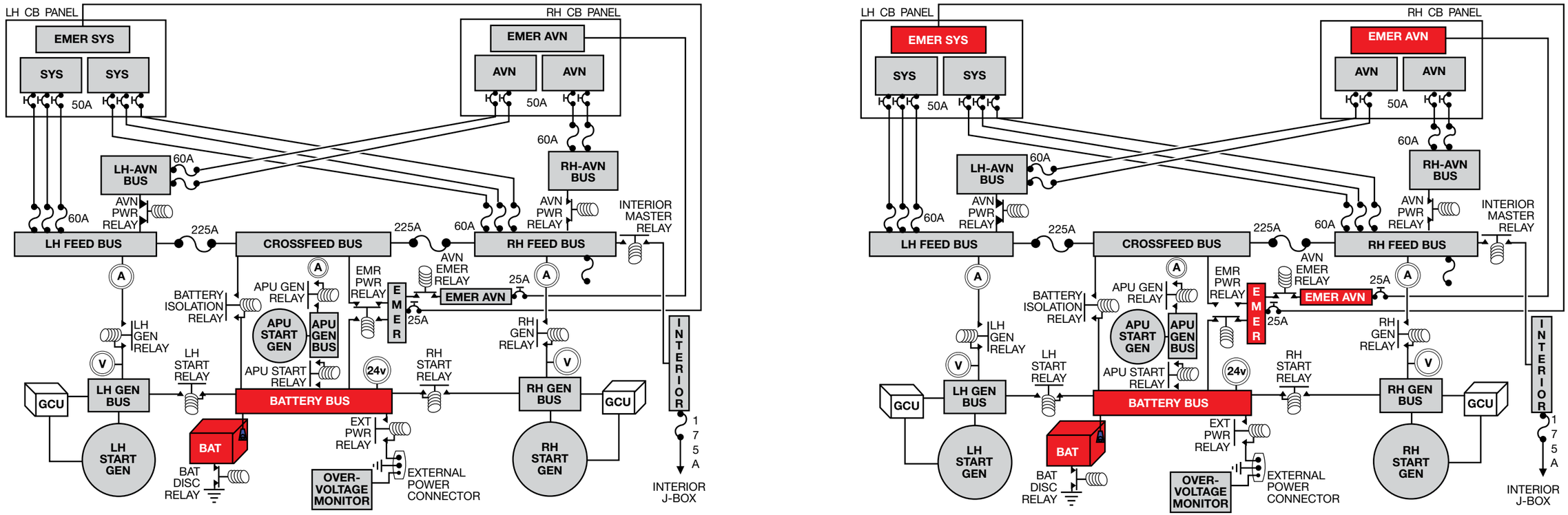
INTRODUCTION

This chapter describes the electrical power system network used on the Model 560XL/XLS/XLS+. Information is included on direct current (DC) and alternating current (AC) systems. Descriptive coverage of the electrical system consists of power sources, generation, distribution, and system monitoring. Provisions are also made for a limited supply of power during in-flight emergency conditions and for connection of external power while on the ground. References for this chapter and further specific information can be found in Chapters 5—"Time Limits/Maintenance Checks," Chapter 12—"Servicing," and Chapter 24—"Electrical Power," of the *Aircraft Maintenance Manual (AMM)*.

GENERAL

The Model 560XL incorporates DC and AC electrical systems. DC electrical power is required for operation and control of main aircraft systems such as hydraulics, environmental, and anti-ice systems. AC electrical power is required for windshield anti-ice and is provided by an engine-driven alternator. The primary source of DC electrical power is provided by two starter-generators on the engines that are connected in parallel to a common bus system, for equal load sharing. A nickel-cadmium or lead acid battery or an optional onboard auxiliary power unit (APU) provides secondary/backup DC power sources. Provision for connecting an external power supply (EPU) when on the ground is also included.

Current limiters and circuit breakers protect all electrical buses, wiring, and equipment. Backup and emergency power supplies (with associated buses and circuits) are incorporated to provide adequate electrical power for both AC and DC essential equipment during emergency operations. Positioning the battery switch to EMER enables the crew to reduce electrical loads by removing power from nonessential equipment, while maintaining essential electrical power during emergency situations (caused by a loss of primary power). A DC voltmeter, ammeter gauges, annunciator, and master warning switchlights provide monitoring capability for the electrical system.



CONDITION:
BATTERY CONNECTED
- Battery voltage is supplied to the Hot Battery Bus through the battery connector

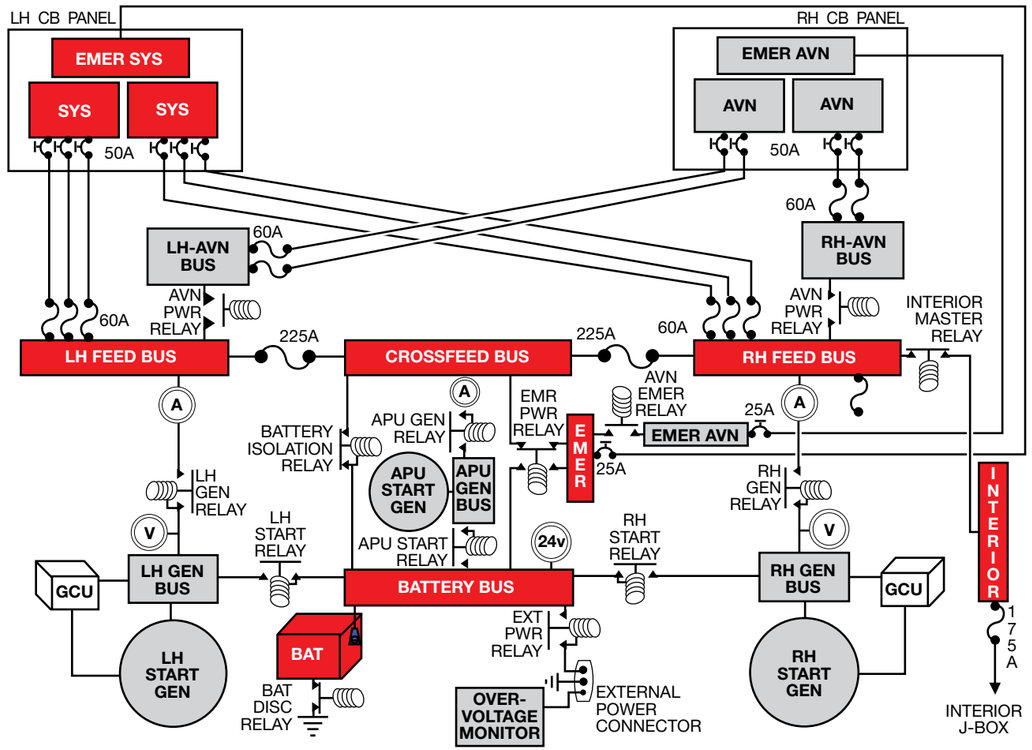
LEGEND

BATTERY POWER	RIGHT ALTERNATOR POWER	LEFT ALTERNATOR POWER	EXTERNAL POWER
RIGHT GENERATOR POWER	LEFT GENERATOR POWER	APU POWER	GROUND

CONDITION:
BATTERY SWITCH IN THE “EMER” POSITION
- EMER POWER RELAY is energized
- Voltage feeds through the energized set of contacts of the EMER PWR RELAY to the emer system buses
- Voltage then feeds through the relaxed contacts of the AVN EMER RELAY to the emer avionics buses

NOTES

Figure 24-1. Battery Power



CONDITION:
BATTERY SWITCH IN THE "ON" POSITION
- BATTERY ISOLATION RELAY is energized closed
- Voltage feeds through the relaxed set of contacts of the EMER PWR RELAY to the emer system buses
- Interior master relay is also energized closed due to the interior master switch being in the guarded position

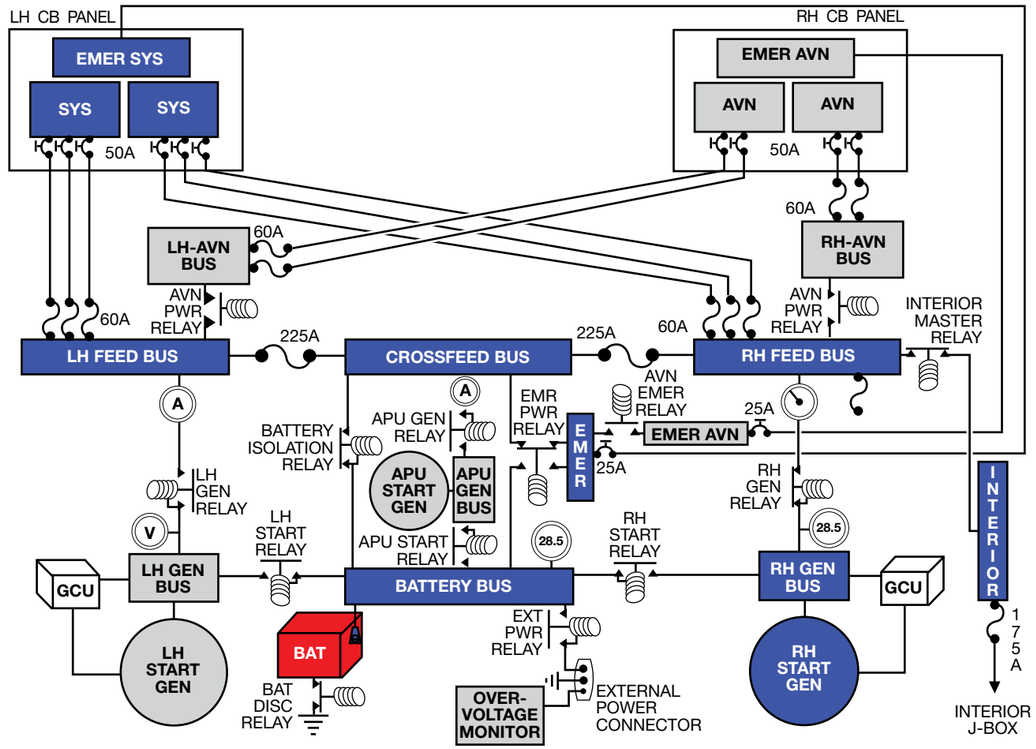
LEGEND

BATTERY POWER	RIGHT ALTERNATOR POWER	LEFT ALTERNATOR POWER	EXTERNAL POWER
RIGHT GENERATOR POWER	LEFT GENERATOR POWER	APU POWER	GROUND

CONDITION:
RH ENGINE START
- RH start button was pressed and released
- RH START RELAY is energized closed causing the start button light to illuminate and battery power to supply the RH starter/generator

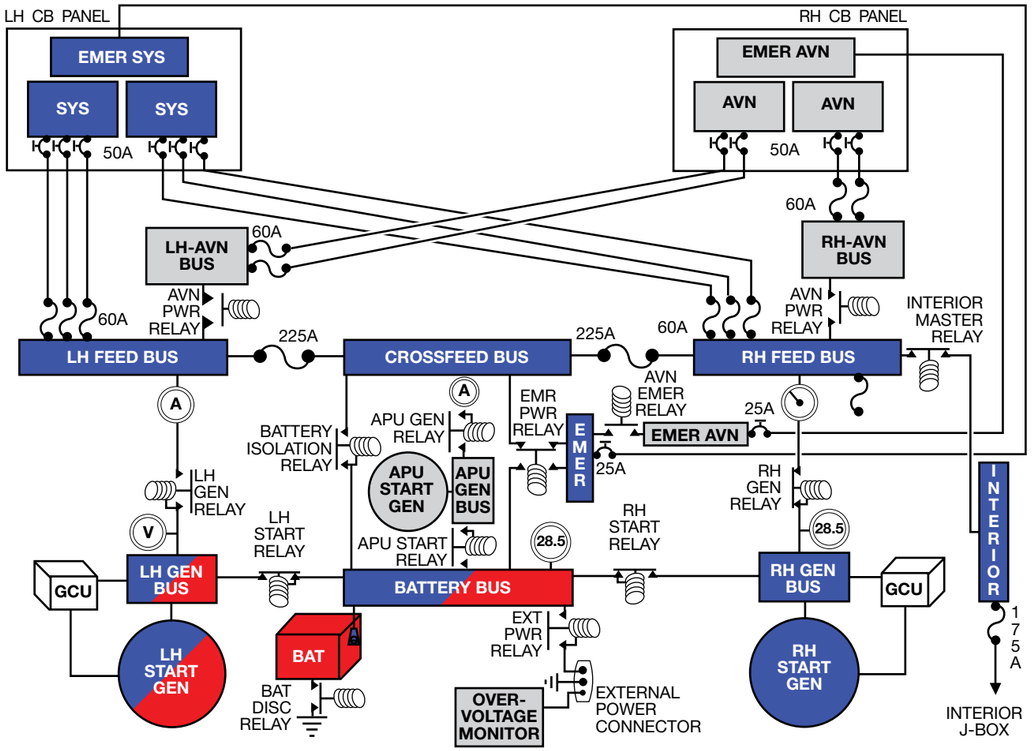
NOTES

Figure 24-2. Battery Start



CONDITION:
RH GENERATOR ONLINE
- The RH start relay is no longer energized closed since the engine accelerated past 42-46% N_2
- RH GEN switch is in the "ON" position which is the correct position for battery starts
- The RH GEN RELAY is energized closed supplying all of the buses with 28.5 volts from the RH Gen.

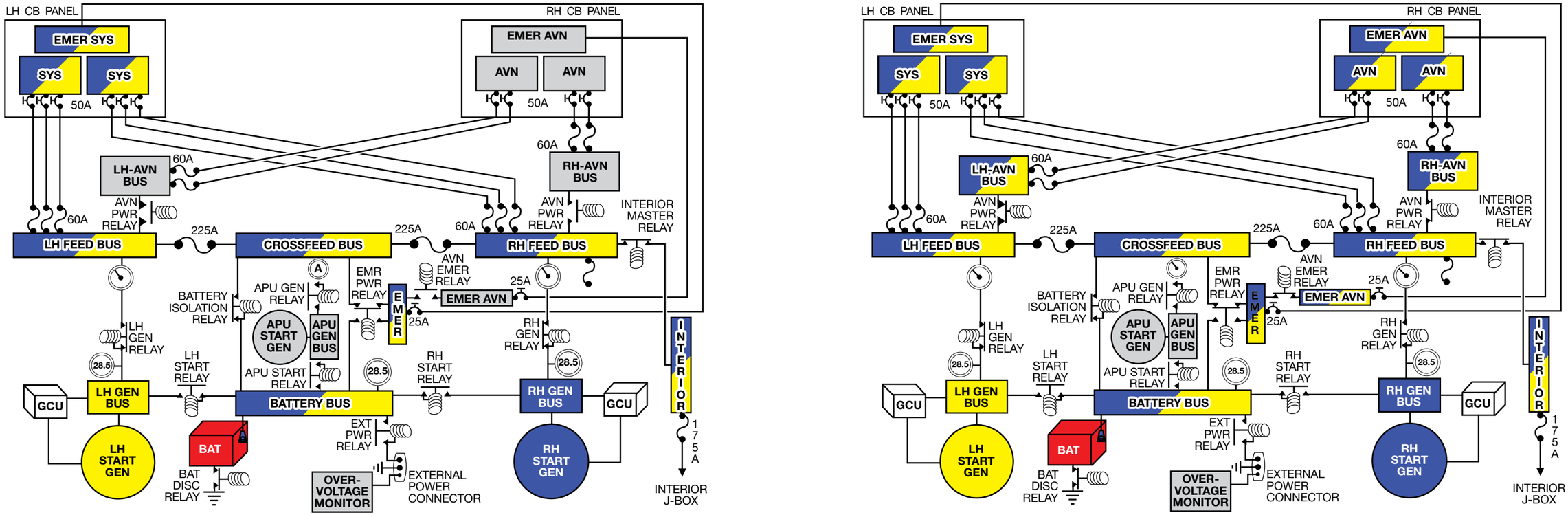
LEGEND
- BATTERY POWER
- RIGHT ALTERNATOR POWER
- LEFT ALTERNATOR POWER
- EXTERNAL POWER
- RIGHT GENERATOR POWER
- LEFT GENERATOR POWER
- APU POWER
- GROUND



CONDITION:
LH ENGINE START (GENERATOR ASSIST)
- LH start button was pressed and released
- BATTERY ISOLATION RELAY is de-energized open
- Both LH and RH START RELAYS are energized closed, illuminating both start buttons and provicing a pathe for RH gen and Battery power to supply the LH start/generator

NOTES

Figure 24-3. Generator Assisted Start



CONDITION:
LH GENERATOR ONLINE
- The start relays are no longer energized closed since the LH engine accelerated past 42-46% N_2
- Both GEN switches are in the "ON" position which is the correct position for the battery starts
- Both GEN RELAYS are energized closed supplying all of the buses with 28.5 volts from both Gens.

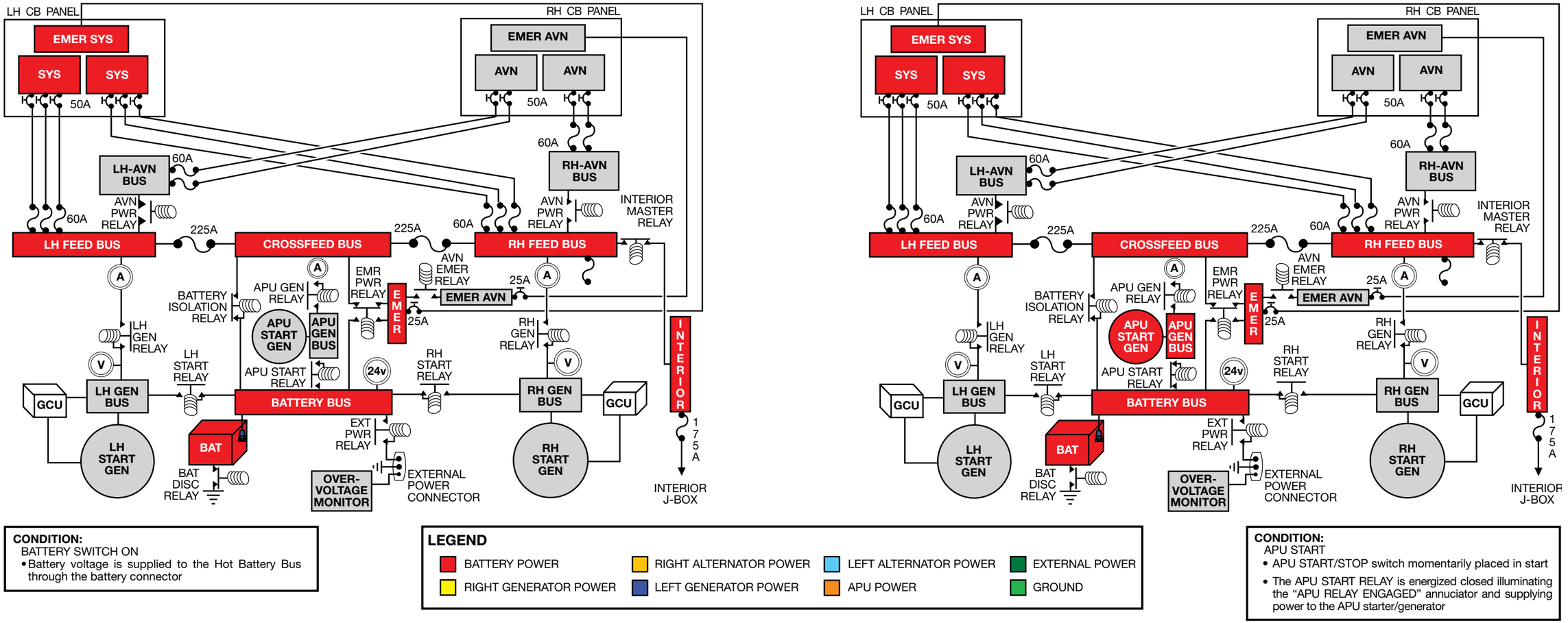
LEGEND

BATTERY POWER	RIGHT ALTERNATOR POWER	LEFT ALTERNATOR POWER	EXTERNAL POWER
RIGHT GENERATOR POWER	LEFT GENERATOR POWER	APU POWER	GROUND

CONDITION:
AVIONICS POWER ON
- AVIONICS POWER switch has been placed in the "ON" position
- The AVN EMER RELAY and both AVN PWR RELAYS are de-energized closed to supply voltage to all of the avionics buses

NOTES

Figure 24-4. Generators Online



CONDITION:
BATTERY SWITCH ON
- Battery voltage is supplied to the Hot Battery Bus through the battery connector

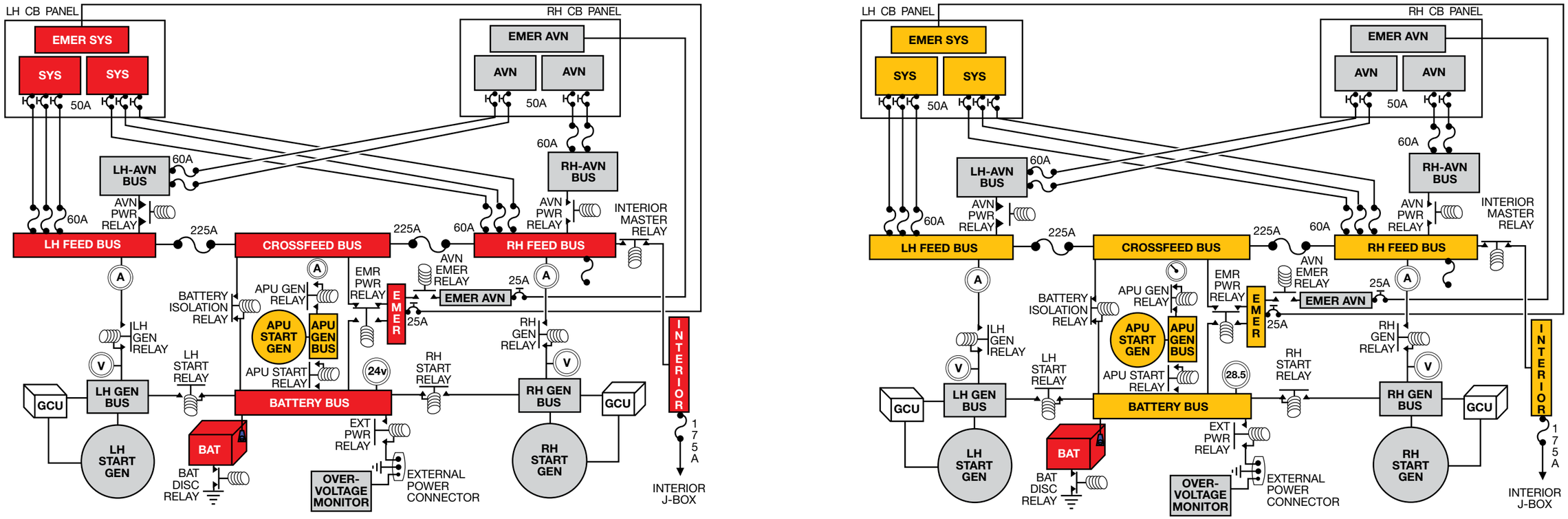
LEGEND

BATTERY POWER	RIGHT ALTERNATOR POWER	LEFT ALTERNATOR POWER	EXTERNAL POWER
RIGHT GENERATOR POWER	LEFT GENERATOR POWER	APU POWER	GROUND

CONDITION:
APU START
- APU START/STOP switch momentarily placed in start
- The APU START RELAY is energized closed illuminating the “APU RELAY ENGAGED” annuciator and supplying power to the APU starter/generator

NOTES

Figure 24-5. APU Start



CONDITION:
APU RUNNING
- At approx. 50% speed the start sequence terminates and the APU START RELAY re-opens extinguishing the “APU RELAY ENGAGED” annunciator
- The apu continues to accelerate to 100% speed (idle) at which point the “READY TO LOAD” annunciator will illuminate

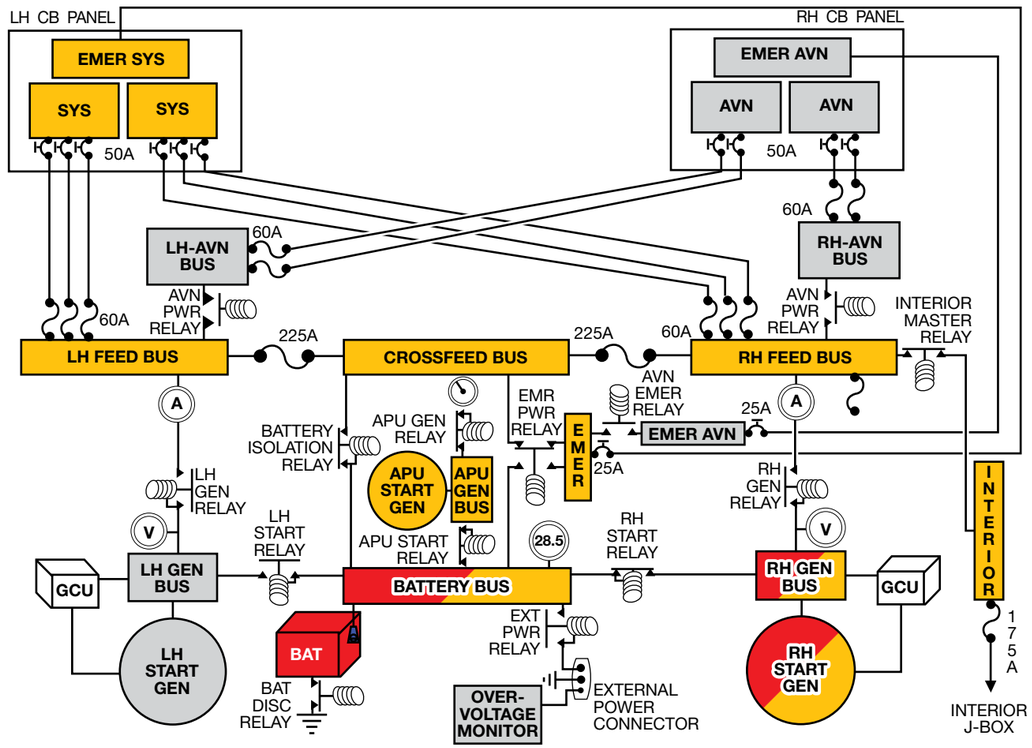
LEGEND

BATTERY POWER	RIGHT ALTERNATOR POWER	LEFT ALTERNATOR POWER	EXTERNAL POWER
RIGHT GENERATOR POWER	LEFT GENERATOR POWER	APU POWER	GROUND

CONDITION:
APU GENERATOR ON LINE
- APU GENERATOR switch was placed in the “ON” position
- The APU GENERATOR RELAY closed providing APU gen power to the corssfeed bus and on to all of the system buses

NOTES

Figure 24-6. APU Generator Online

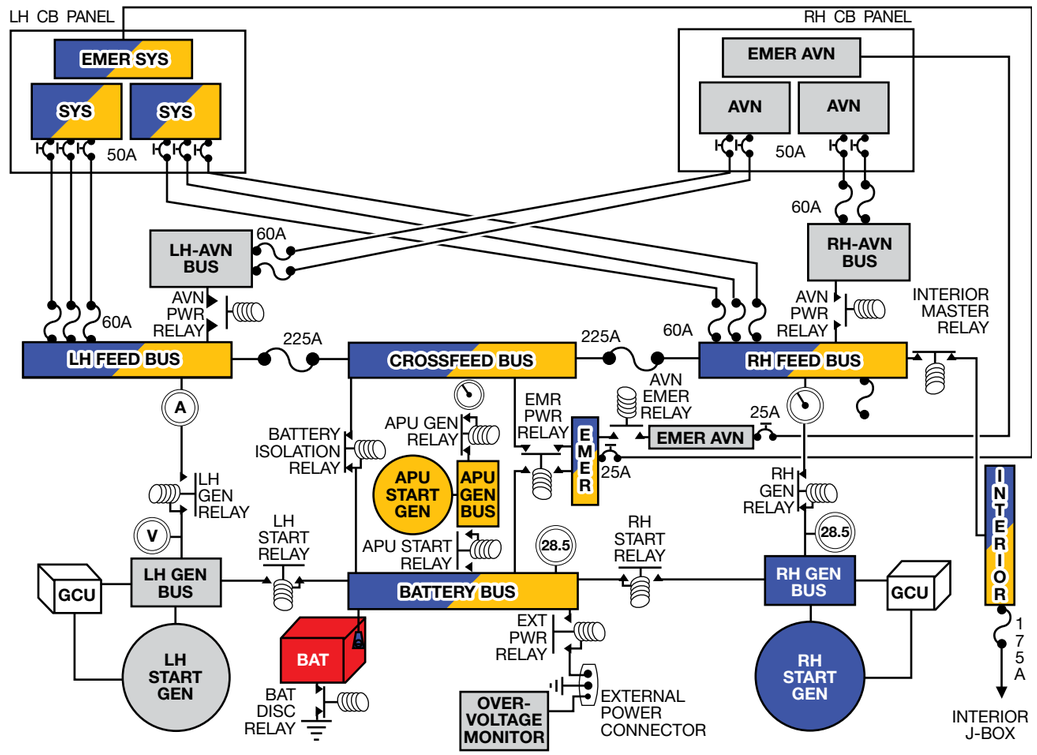


CONDITION:
RH ENGINE START
- The RH START button was pressed and released
- The RH START RELAY closed illuminating the start button light
- The APU START RELAY closed illuminating the apu relay engaged annunciator

NOTE: Pre-Service Publication 24-14

LEGEND

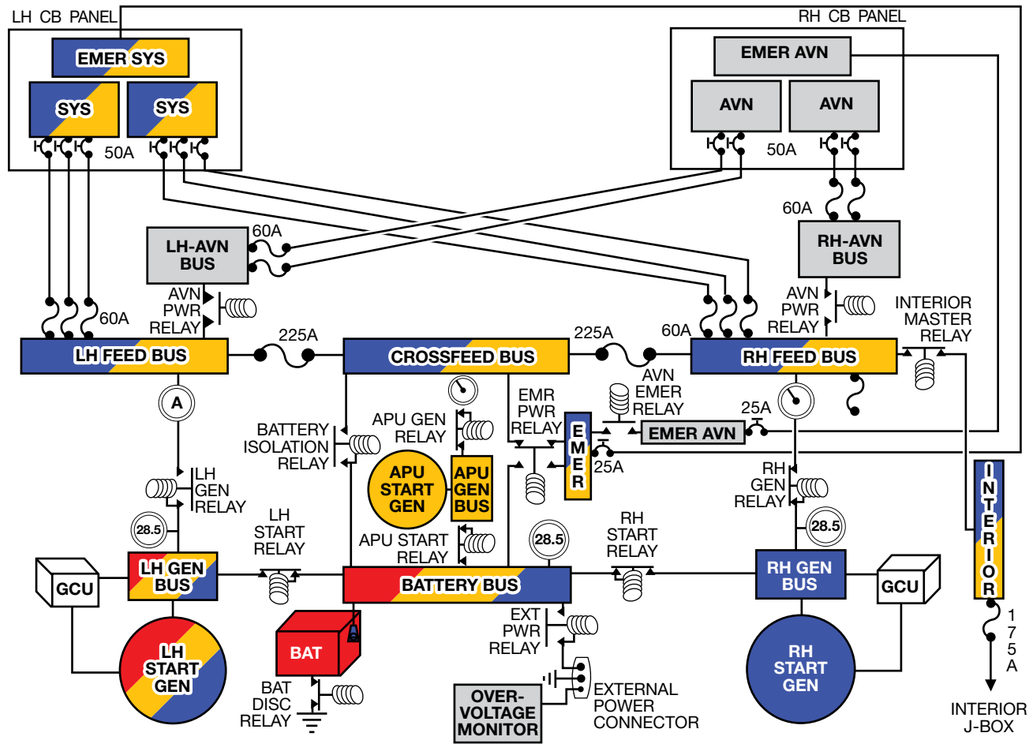
BATTERY POWER	RIGHT ALTERNATOR POWER	LEFT ALTERNATOR POWER	EXTERNAL POWER
RIGHT GENERATOR POWER	LEFT GENERATOR POWER	APU POWER	GROUND



CONDITION:
APU AND RH GENERATORS ONLINE
- The start relays are no longer energized closed since the RH engine accelerated past 42-46% N_2
- Both GEN switches are in the "ON" position which is the correct position for engine starts using the APU
- The RH GEN RELAY is energized closed

NOTES

Figure 24-7. APU Assisted Start (Sheet 1 of 2)



CONDITION:
LH ENGINE START (GENERATOR ASSIST)

- LH START button was pressed and released
- The APU and both LH and RH start relays are energized closed illuminating both start buttons and the APU relay engaged annunciator
- The Battery Isolation relay is de-energized open protecting the 225A current limiters

NOTE: Pre-Service Publication 24-14

LEGEND

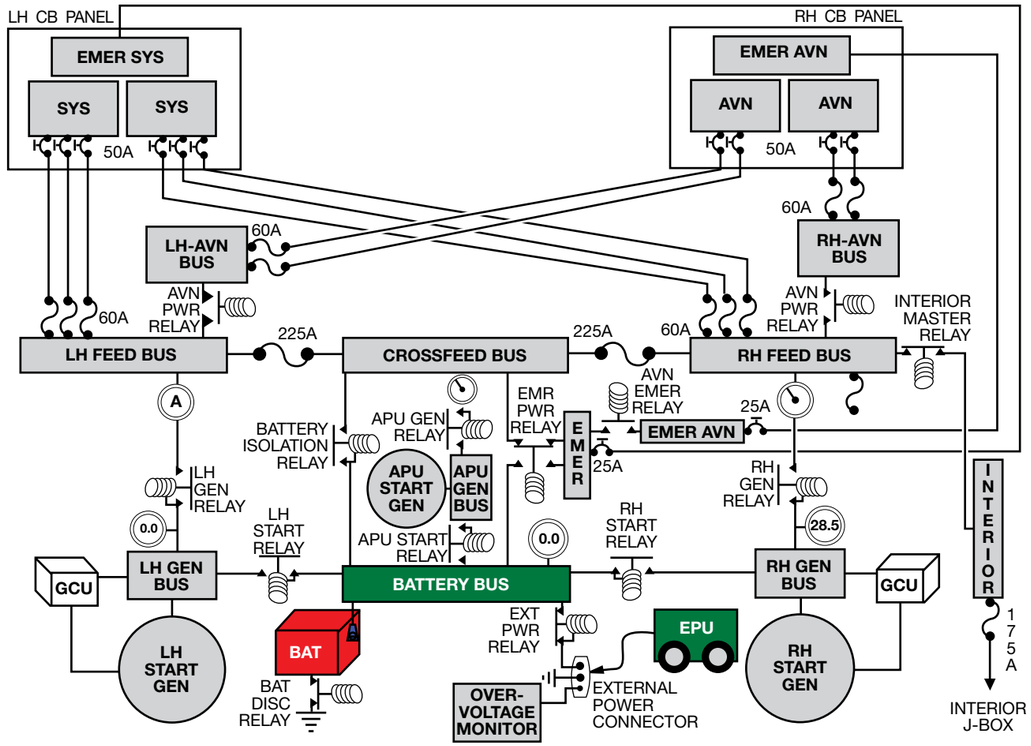
- BATTERY POWER
- RIGHT ALTERNATOR POWER
- LEFT ALTERNATOR POWER
- EXTERNAL POWER
- RIGHT GENERATOR POWER
- LEFT GENERATOR POWER
- APU POWER
- GROUND

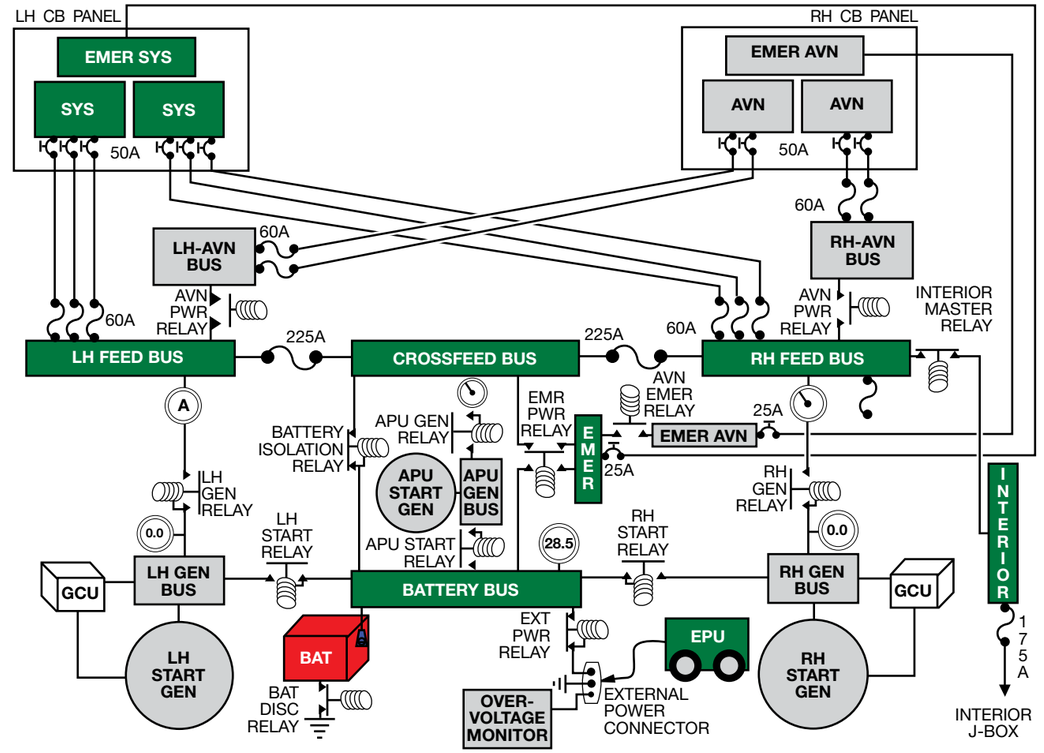
CONDITION:
LH GENERATOR ONLINE

- The start relays are no longer energized closed nor is the battery isolation relay de-energized open since the LH engine accelerated past 42-46% N_2
- The LH gen relay closed supplying the system buses with the power from both main engine generators and the APU generator

NOTES

Figure 24-7. APU Assisted Start (Sheet 2 of 2)





CONDITION:
EPU CONNECTED

- The external power unit is producing 28 vdc and is connected to the aircraft
- Since the EPU voltage is less than 32.5 vdc and with no aircraft generators on line, the EXTERNAL POWER RELAY is energized closed providing EPU power to the Hot Battery Bus and also to the aircraft battery

LEGEND

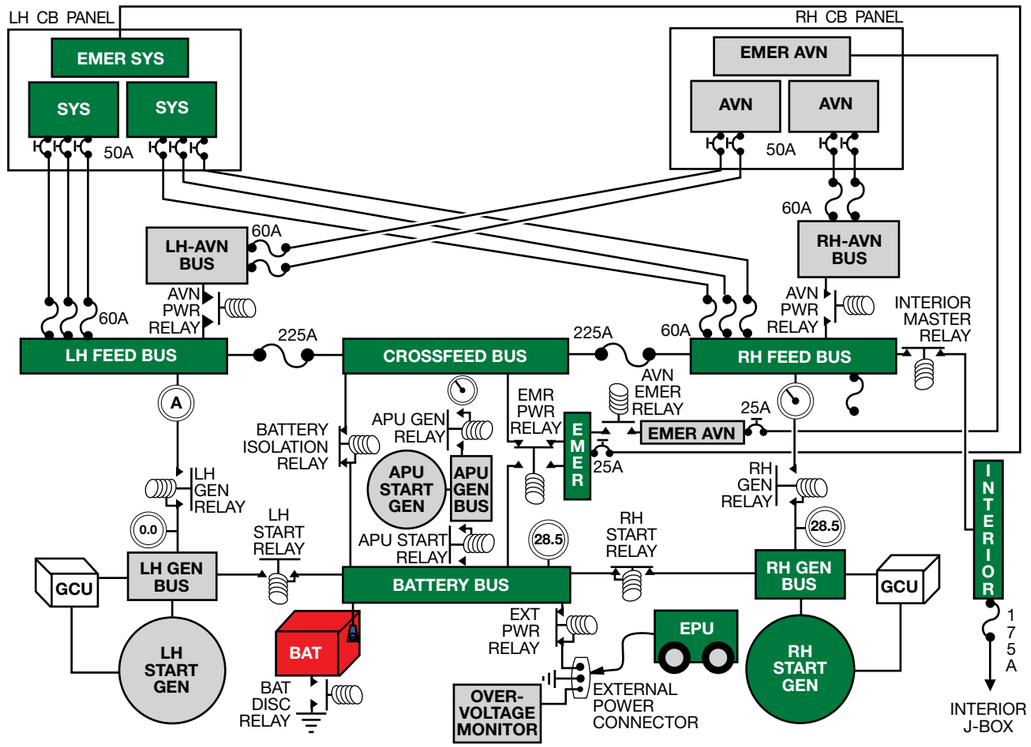
- BATTERY POWER
- RIGHT ALTERNATOR POWER
- LEFT ALTERNATOR POWER
- EXTERNAL POWER
- RIGHT GENERATOR POWER
- LEFT GENERATOR POWER
- APU POWER
- GROUND

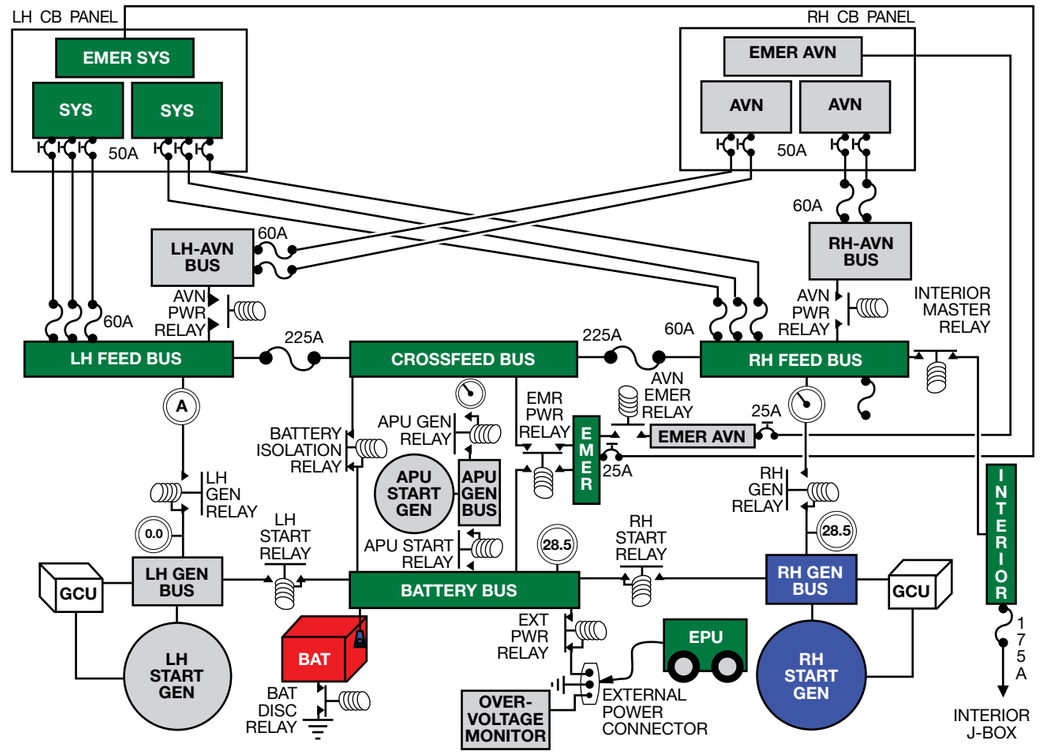
CONDITION:
BATTERY SWITCH—"ON"

- Placing the battery switch in the "ON" position, the BATTERY ISOLATION RELAY is energized closed
- All of the system buses are now receiving EPU power

NOTES

Figure 24-8. External Power Unit Starts (Sheet 1 of 4)





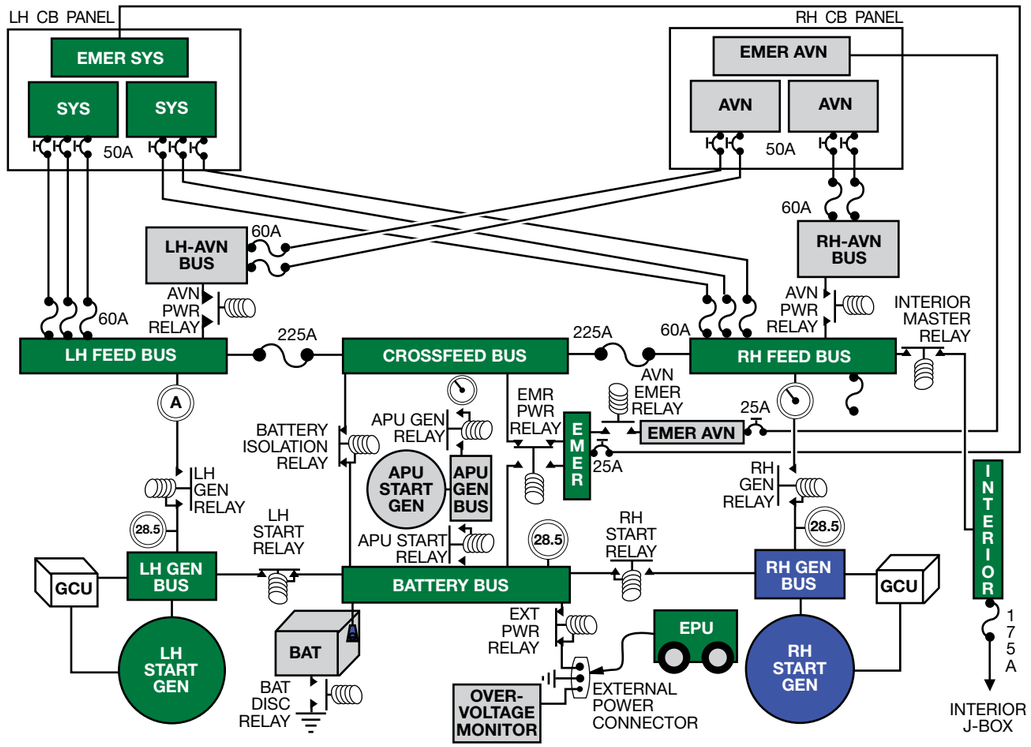
CONDITION:
RH ENGINE START
- RH start button was pressed and released
- RH START RELAY is energized closed causing the start button light to illuminate and EPU power to supply the RH starter/generator
- The BATT DISC RELAY is energized open to prevent the battery from assisting with the start

LEGEND
- BATTERY POWER
- RIGHT ALTERNATOR POWER
- LEFT ALTERNATOR POWER
- EXTERNAL POWER
- RIGHT GENERATOR POWER
- LEFT GENERATOR POWER
- APU POWER
- GROUND

CONDITION:
RH ENGINE RUNNING
- The RH START RELAY is no longer energized closed nor is the BATT DISC RELAY energized open since the engine accelerated past 42-46% N_2
- The RH generator will produce 28.5 vdc, but its power will not be supplied to the buses since “OFF” is the correct generator switch position for EPU starts

NOTES

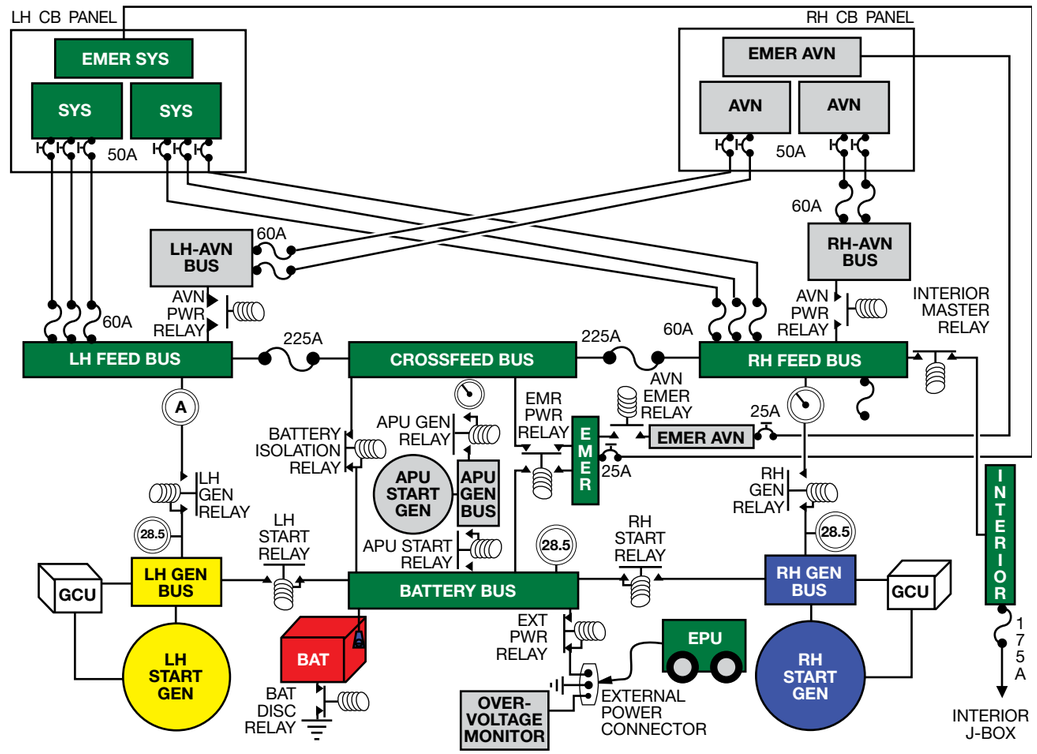
Figure 24-8. External Power Unit Starts (Sheet 2 of 4)



CONDITION:
LH ENGINE START
- LH start button was pressed and released
- LH START RELAY is energized closed causing the start button light to illuminate and EPU power to supply the LH starter/generator
- The BATT DISC RELAY is energized open to prevent the battery from assisting with the start

LEGEND

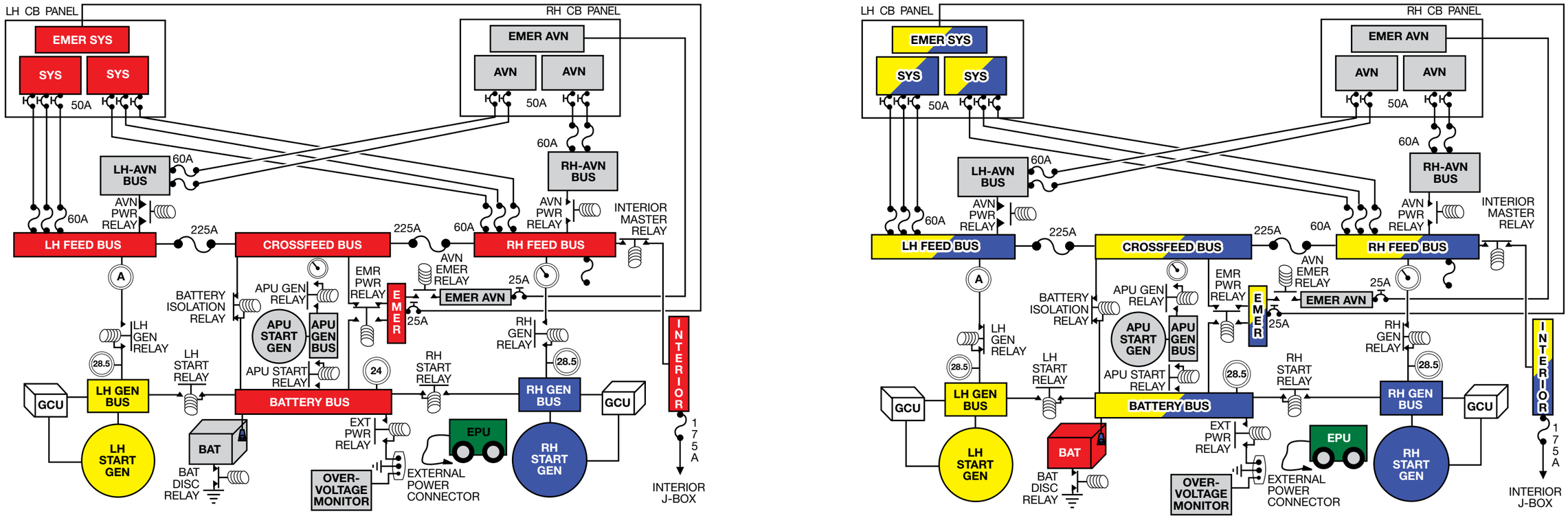
BATTERY POWER	RIGHT ALTERNATOR POWER	LEFT ALTERNATOR POWER	EXTERNAL POWER
RIGHT GENERATOR POWER	LEFT GENERATOR POWER	APU POWER	GROUND



CONDITION:
LH ENGINE RUNNING
- The LH START RELAY is no longer energized closed nor is the BATT DISC RELAY energized open since the engine accelerated past 42-46% N_2
- The LH generator will produce 28.5 vdc, but its power will not be supplied to the buses since "OFF" is the correct generator switch position for EPU starts

NOTES

Figure 24-8. External Power Unit Starts (Sheet 3 of 4)



CONDITION:
EPU DISCONNECTED

- Per the checklist, the EPU should be disconnected prior to placing the generators on line
- When the EPU power plug is removed, the EXT PWR RELAY will be de-energized open
- The cockpit voltmeter will drop back down to Battery voltage of 24-25 vdc

LEGEND

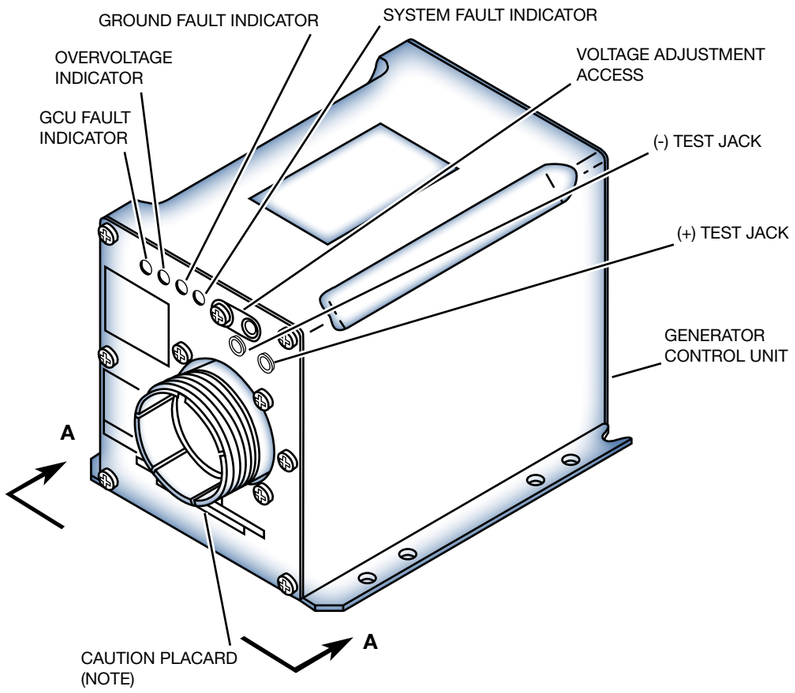
- BATTERY POWER
- RIGHT ALTERNATOR POWER
- LEFT ALTERNATOR POWER
- EXTERNAL POWER
- RIGHT GENERATOR POWER
- LEFT GENERATOR POWER
- APU POWER
- GROUND

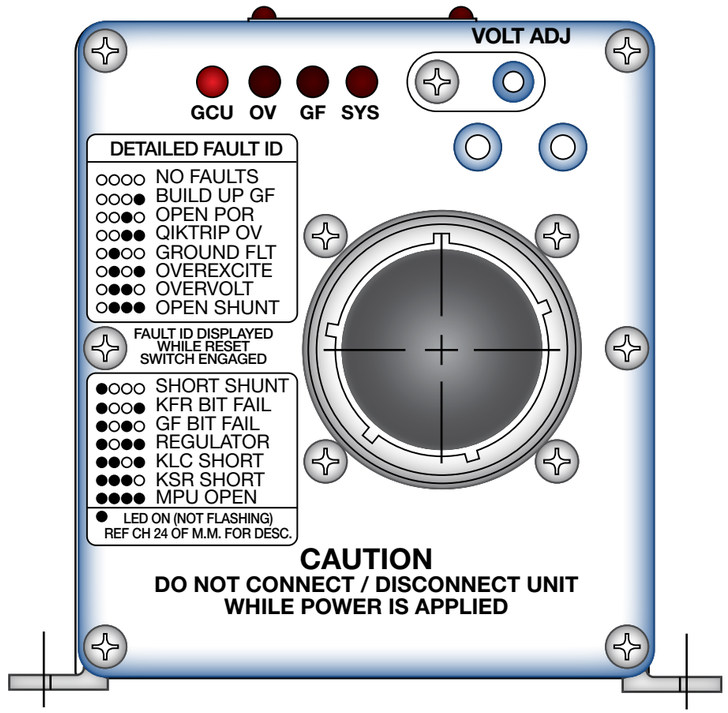
CONDITION:
LH AND RH GENERATORS ONLINE

- After the EPU is disconnected, the GEN switches are placed in the “ON” position
- The LH and RH GEN RELAYS are energized closed supplying all of the system buses with 28.5 vdc from the two engine generators which are then sharing the current load

NOTES

Figure 24-8. External Power Unit Starts (Sheet 4 of 4)





VIEW A-A

NOTE: OBSERVE INFORMATION ON THE PLACARD TO PREVENT DAMAGE TO THE GENERATOR CONTROL UNIT.

Figure 24-9. Generator Control Unit (GCU)

NOTES

NOTES

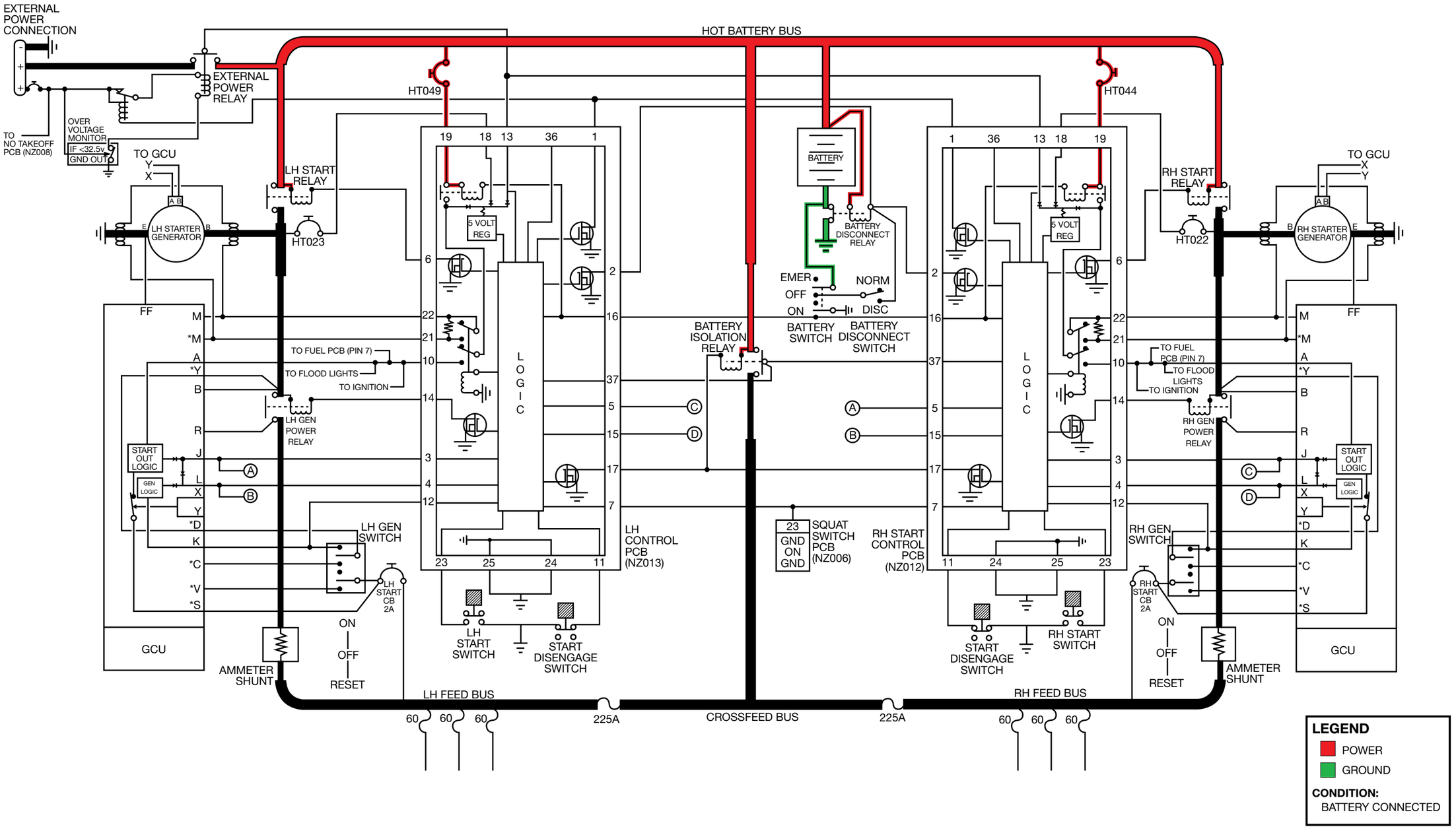


Figure 24-10. Simplified Electrical System—Battery Connected

BATTERY CONNECTED

Conditions

1. Battery plugged in.

Objectives

1. Connect battery to hot battery bus.
2. Provide power to battery relay, left and right start relays, and left and right K2 PCB relays.

Sequence of Events

1. Power applied to hot battery bus.
2. Power on pin 19 of the left and right start PCB's applies power to the K2 relays.

NOTES

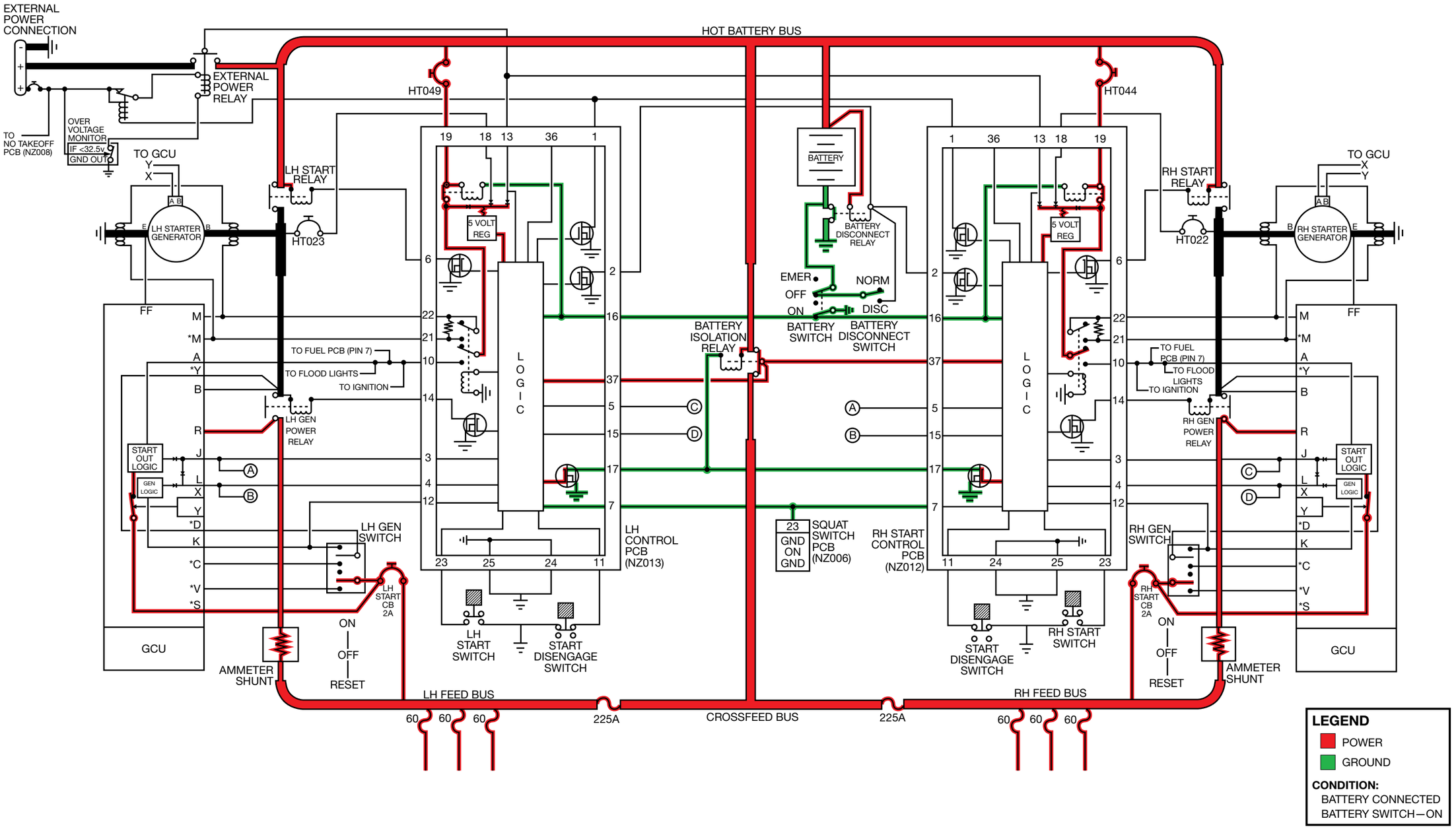


Figure 24-11. Simplified Electrical System—Battery Switch On

BATTERY SWITCH ON

Conditions

1. Battery switch ON

Objectives

1. Energize the battery relay closed to connect the hot battery bus to the crossfeed bus.
2. Energize the left and right K2 PCB relays closed.

Sequence of Events

1. Both K2 PCB relays energized closed because of ground provided on pin 16 of both start PCB's through the battery switch.
2. Power applied to PAL and one contact of K1 on both start PCB's.
3. Discrete ground input to PAL provided on pin 16 of both start PCB's through the battery switch.
4. PAL causes ground on Pin 17 of right and left start PCB's energizing the battery relay closed.

NOTES

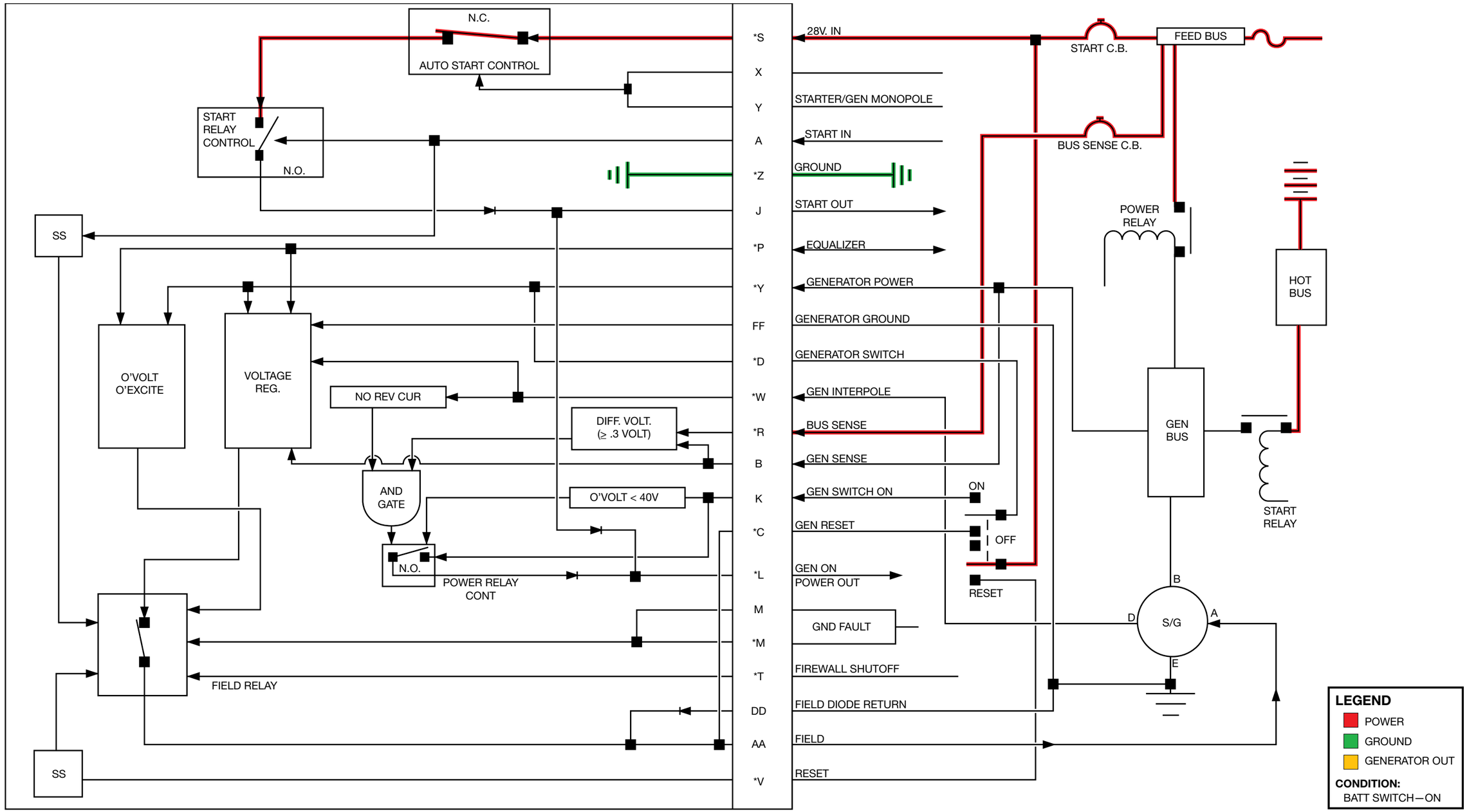


Figure 24-12. Generator Control Unit (GCU)—With Battery Switch On

NOTES

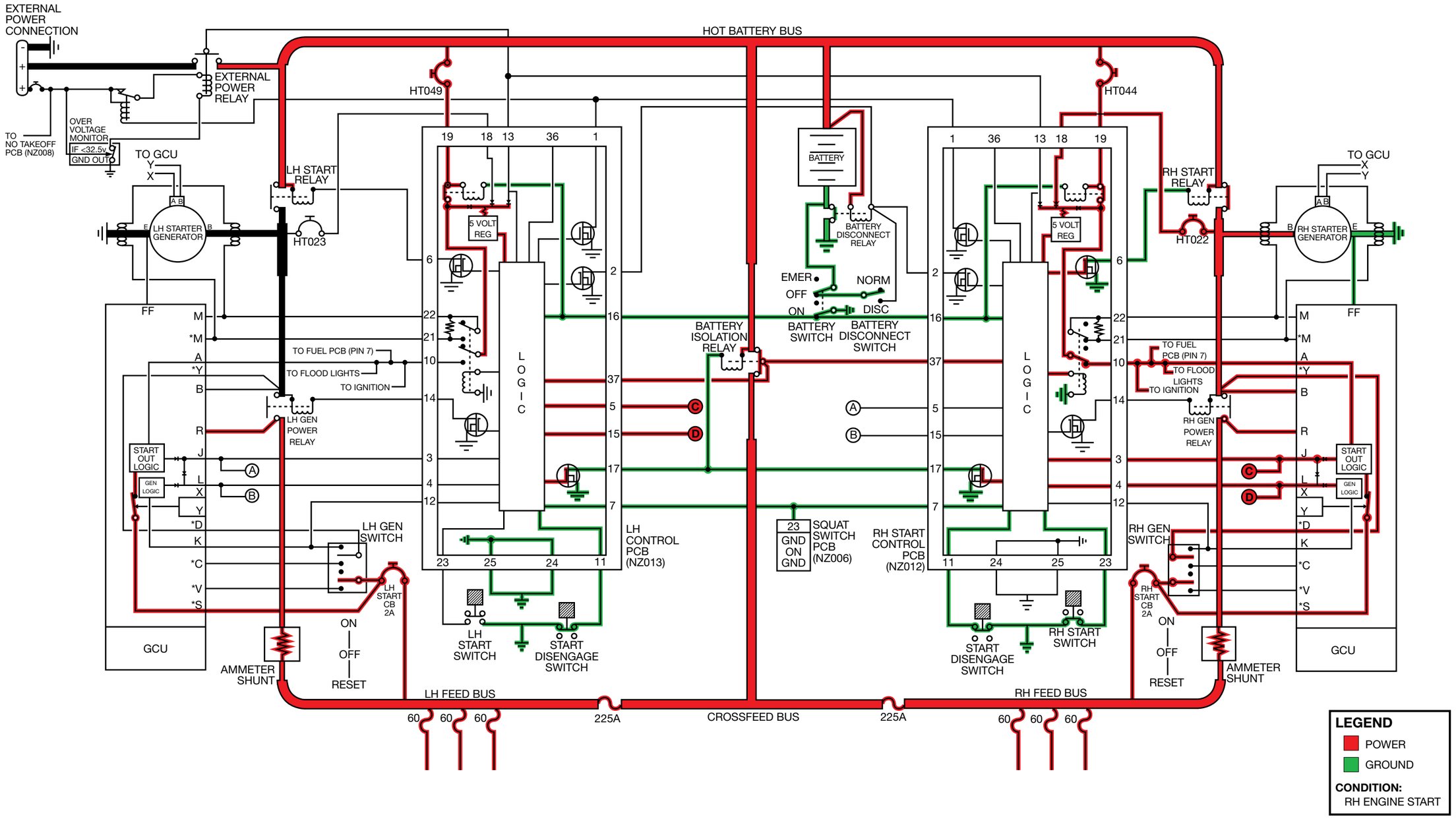


Figure 24-13. Simplified Electrical System—Battery Start RH Engine

BATTERY START RH ENGINE

Conditions

1. Battery start of the right engine

Objectives

1. Close the right start relay.
2. Engage latching circuit for start relay and K1.

Sequence of Events

1. Pressing the right start button provides momentary ground input on pin 23 of right start PCB.
2. Power output from PAL causes K1 PAL relay to initially energize, closing 2 sets of contacts.
   A. One set of contacts short Pins 21 & 22 of start PCB together disabling ground fault sensing circuit of GCU.
   B. Other set of contacts apply power to pin 10 of the start PCB. The following circuits are affected.
      (1) Overhead floodlights ON full bright
      (2) Power to Ignition Power Relay (no effect until throttle is positioned in idle).
      (3) Power to pin 7 of fuel PCB causing fuel boost pump to come ON.
      (4) Power to pin A of GCU.
3. Power on pin A of GCU supplies power on pins J and L to pins 3 & 4 of the right start PCB.
4. Power to PAL from pin 3 of start PCB activates the following circuits.
   a) Ground on pin 6 of right start PCB energizes the start relay closed.
   b) Start relay circuit and PAL relay (K1) circuit are latched ON.
5. Start switch is released removing ground on pin 23 of start PCB.

NOTES

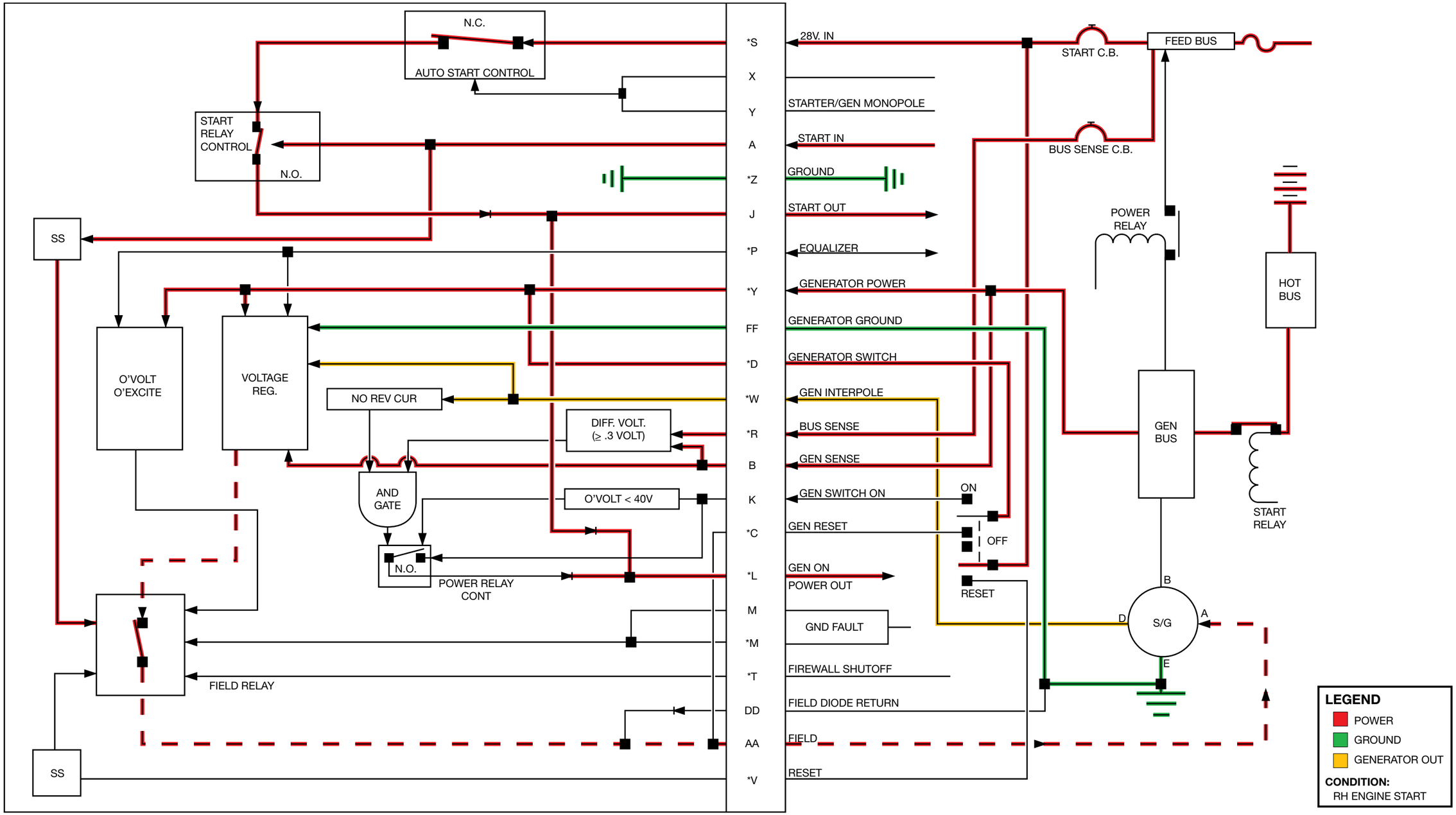


Figure 24-14. Generator Control Unit (GCU)—During Engine Start

NOTES

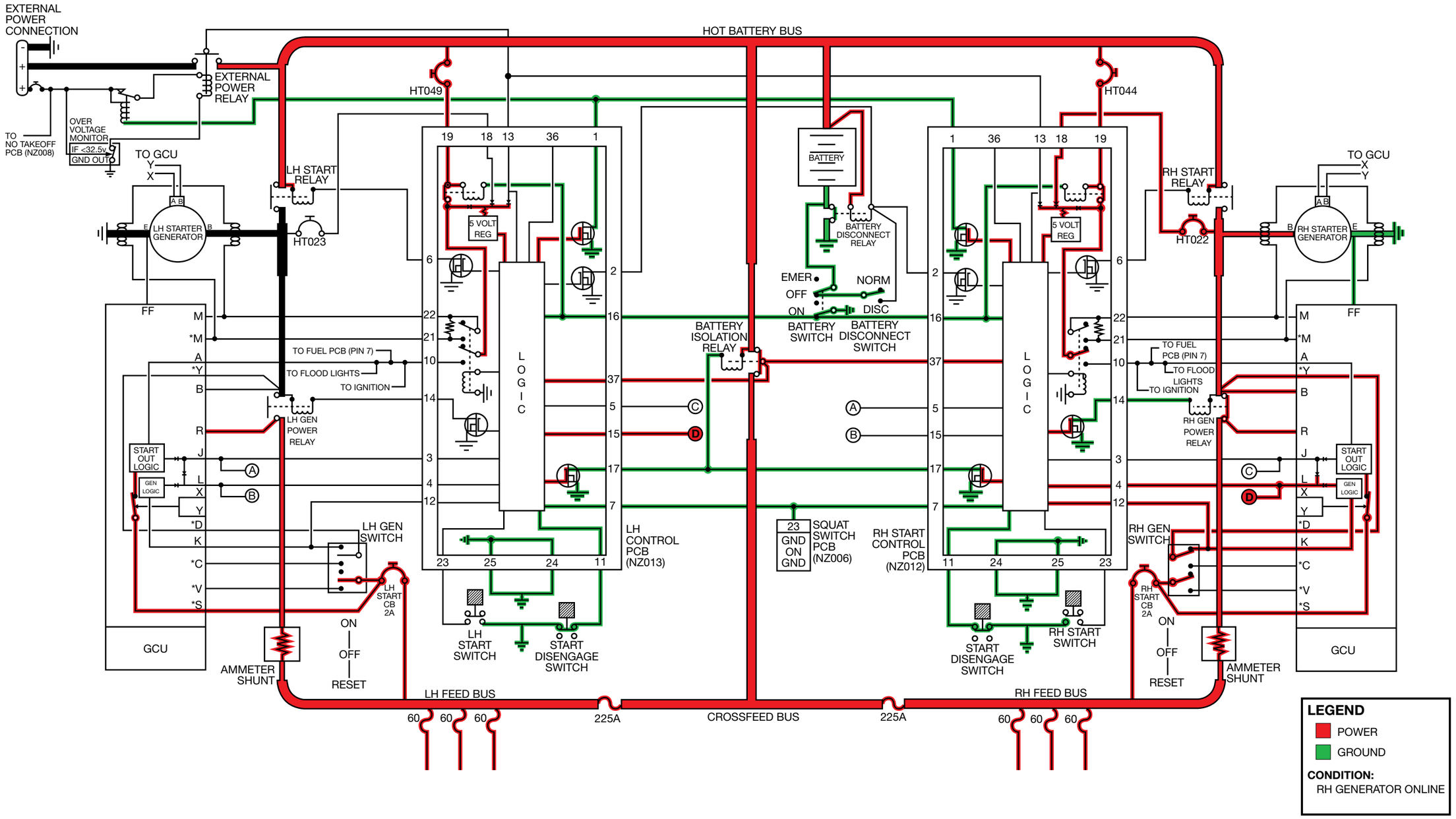


Figure 24-15. Simplified Electrical System—RH Generator Online

RH GENERATOR ONLINE

Conditions

1. Engine speed of approximately 42-46% N_2.

Objectives

1. Release latching circuit terminating start of right engine.
2. Close power relay to connect right generator to feed bus.

Sequence of Events

1. Start is terminated as:
   A. Speed sensing monopole provides inputs in on pins X & Y of the GCU.
   B. GCU logic interrupts power out on pin J of the GCU.
   C. This releases the latching circuit of pin 3 of the PCB affecting the following circuits.
      (1) PAL relay (K1) opens.
      (2) Start relay circuit opens as ground is removed on pin 6.
2. Power relay is closed as:
   A. If generator switch is ON, power is applied to pin 12 of the start PCB.
   B. GCU logic allows power to continue out on pin L of GCU to pin 4 of start PCB.
   C. Power in on pins 4 & 12 to the PAL energizes the circuit that provides a ground for pin 14.
3. An input on pin 18 of the right start PCB provides generator power to the PAL.

NOTES

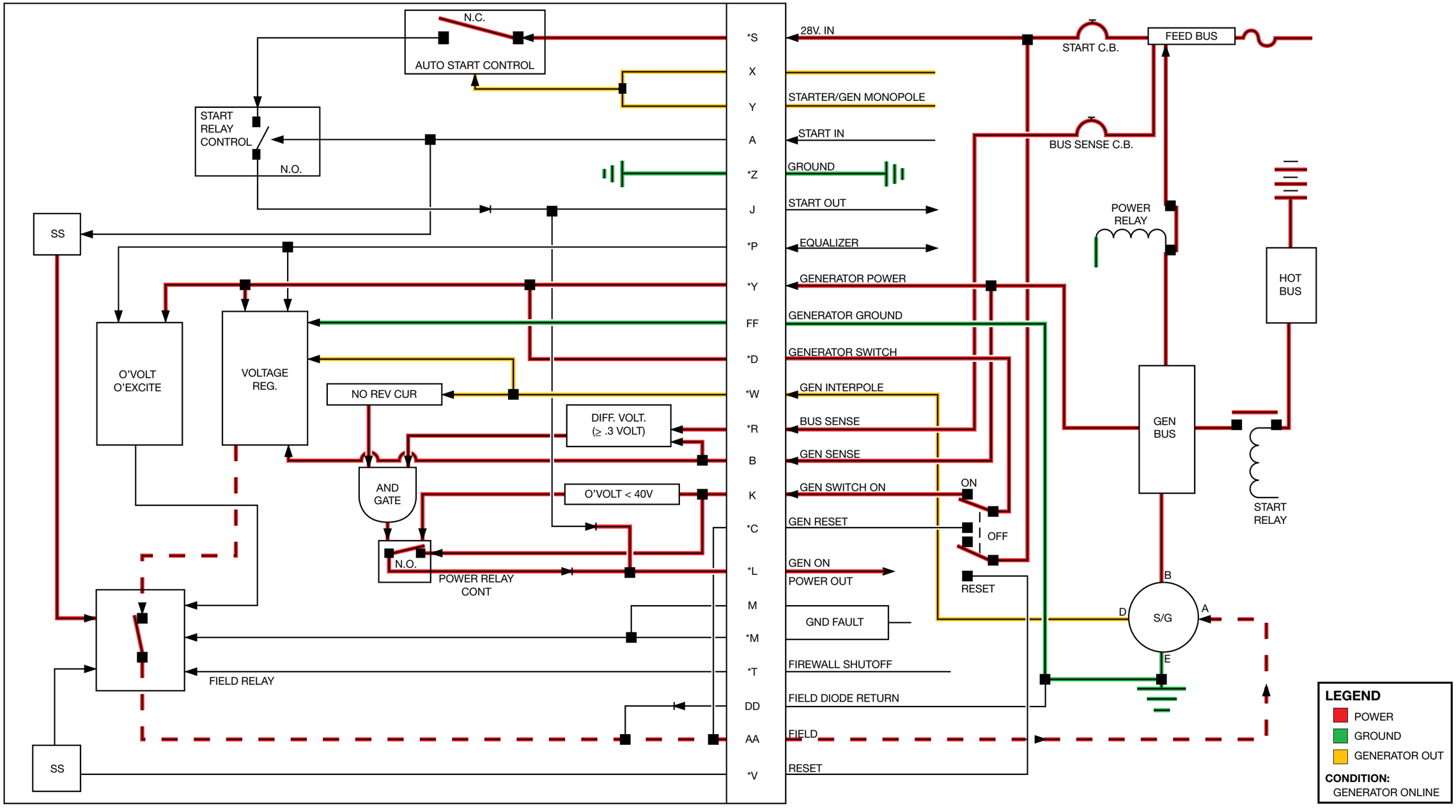


Figure 24-16. Generator Control Unit (GCU)—With Generator Online

NOTES

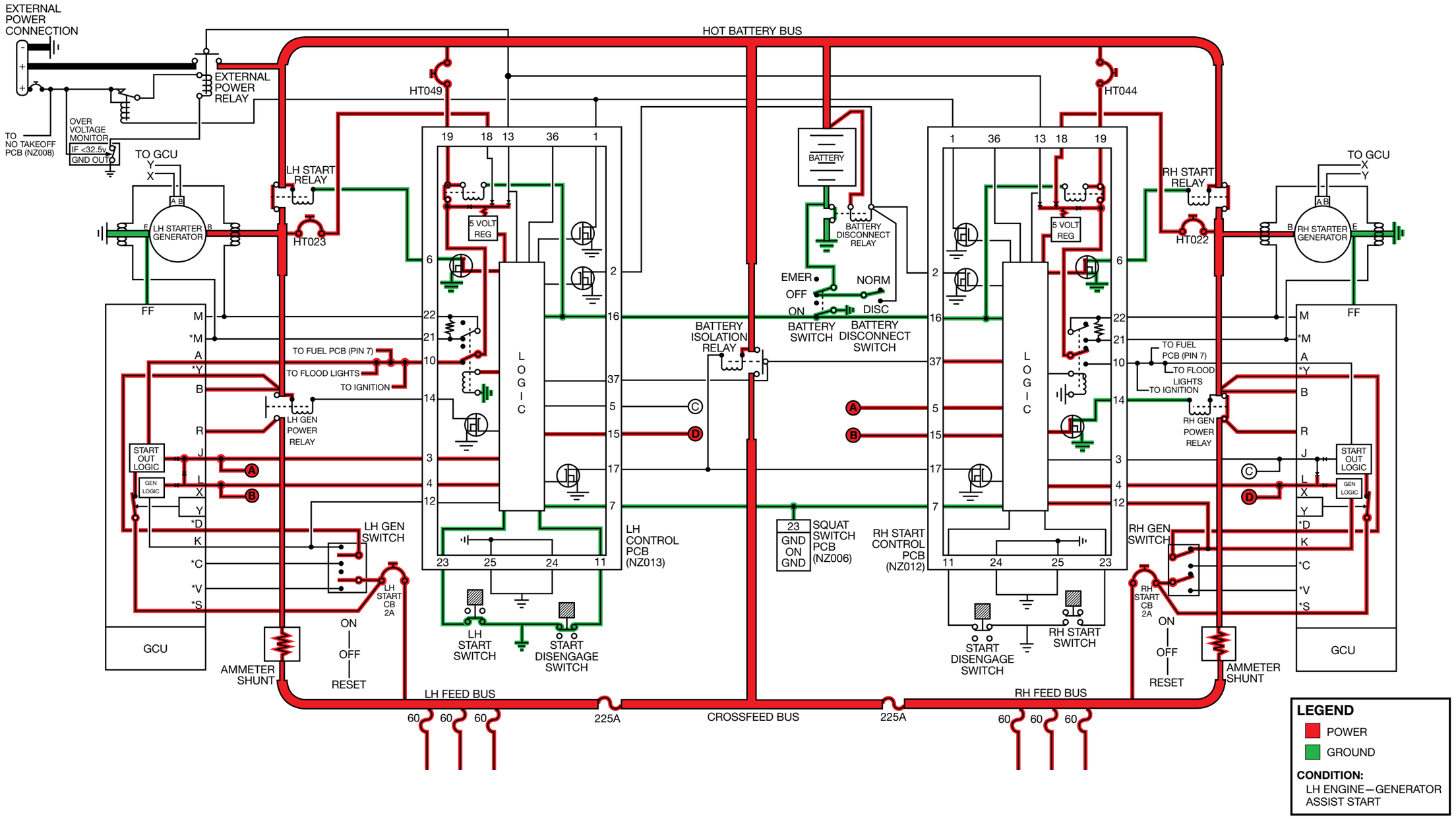


Figure 24-17. Simplified Electrical System—Generator Assist Start On LH Engine

GENERATOR ASSIST START ON LH ENGINE

Conditions

1. Generator assisted start of left engine.

Objectives

1. Open the battery relay.
2. Close both right and left start relays.

Sequence of Events

1. Squat Switch PCB (NZ006) provides a ground on pin 7 of both start PCB's.
2. With generator on line, power out of pin L of right GCU is applied to pin 15 of left start PCB.
3. Momentary ground on pin 23 of left start PCB affects the following circuits.
   A. Opens the ground circuit on pin 17 of the left start PCB.
   B. Initiates the start of the left engine.
4. Power output from PAL causes K1 PAL relay to initially energize, closing 2 sets of contacts.
   A. One set of contacts short Pins 21 & 22 of start PCB together disabling ground fault sensing circuit of GCU.
   B. Other set of contacts applies power to pin 10 of the start PCB. The following circuits are affected.
      (1) Overhead floodlights ON full bright
      (2) Power to pin 5 of ignition PCB (no effect until throttle is positioned in idle).
      (3) Power to pin 7 of fuel PCB causing fuel boost pump to come ON.
      (4) Power to pin A of GCU.
5. Power on pin A of GCU supplies power on pins J and L to pins 3 & 4 of the left start PCB and pins 5 and 15 of right start PCB.
6. Power to PAL from pin 3 of left start PCB activates the following circuits.
   1. Ground on pin 6 of left start PCB energizes the start relay closed after an open appears on pin 37.
   2. Start relay circuit and PAL relay (K1) circuit are latched ON.
7. Power in on pins 5 & 15 combined with generator power on pins 4 & 12 of the right start PCB affects the following circuits.
   A. Ground on pin 17 of right start PCB opens. Battery relay opens.
   B. Causes a ground on pin 6 of the right start PCB when an open appears on pin 37. The right start relay closes.

NOTES

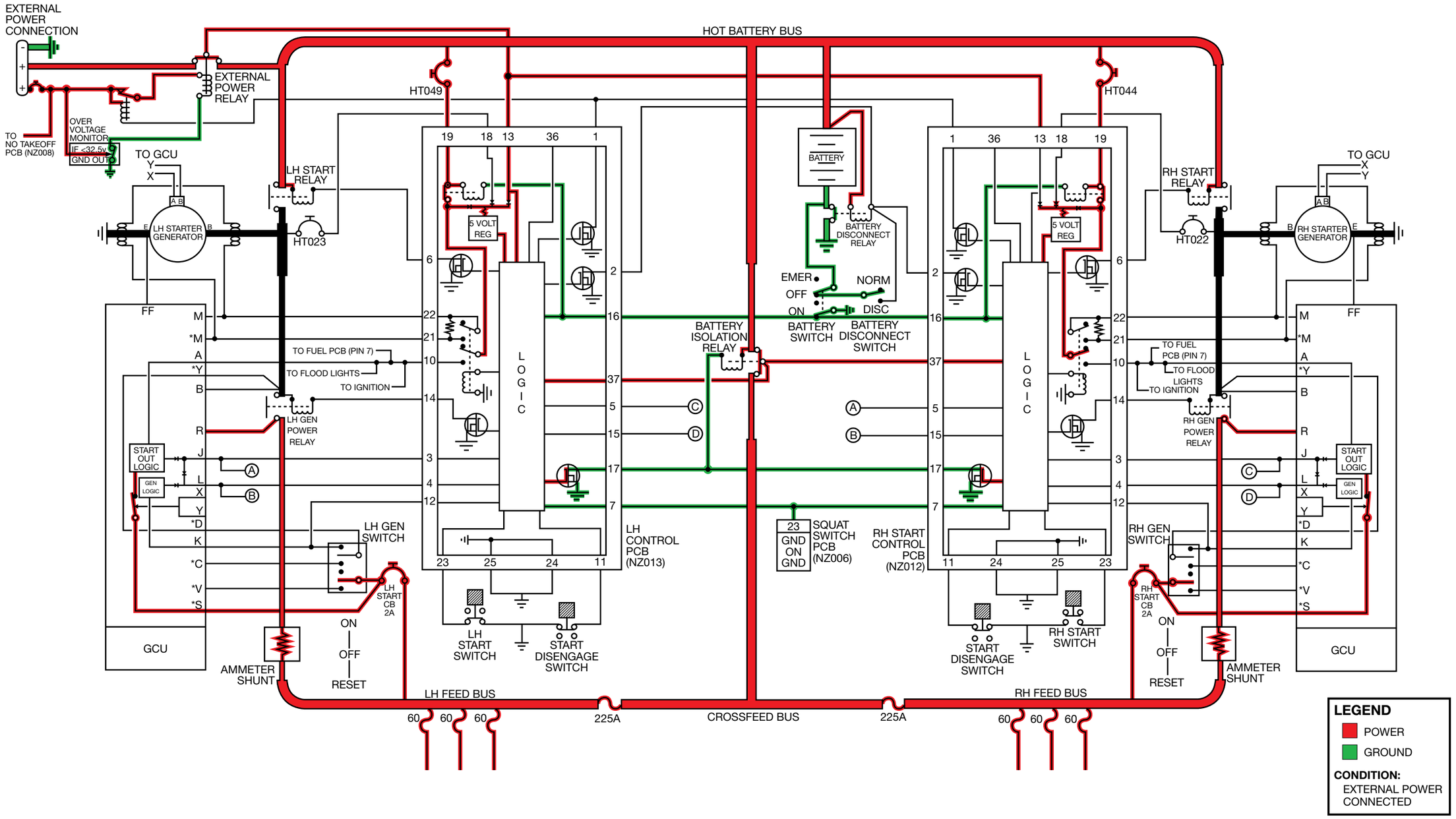


Figure 24-18. Simplified Electrical System—External Power Connected

EXTERNAL POWER CONNECTED

Conditions

1. External power connected.

Objectives

1. Connect external power to the power distribution system.

Sequence of Events

1. Connect external power plug to receptacle.
   A. External power Unit voltage passes through the External Power Control Relay's relaxed contact and goes to the External Power Relay.
   B. External Power Unit voltage is supplied to the overvoltage monitor.
   C. If the EPU voltage is < 32.5 vdc, then the overvoltage monitor will supply a ground for the External Power Relay.
2. External power relay closes applying power to hot battery bus.
   A. Power in on pin 13 of both start PCB's
3. Position battery switch in BATT.
   A. Both K2 PCB relays energized closed because of ground provided on pin 16 of both start PCB's through the battery switch.
   B. Discrete ground input to PAL provided on pin 16 of both start PCB's through the battery switch.
   C. PAL causes ground on Pin 17 of right and left start PCB's energizing the battery relay closed.
   D. External power charges battery and is connected to crossfeed bus.

NOTE

If there is an input to pin 4 (generator on) or pin 15 (other side generate) of the either start PCB with an open on pins 3 or 5, there will be a ground supplied on pin 1 and the external power relay will open.

NOTES

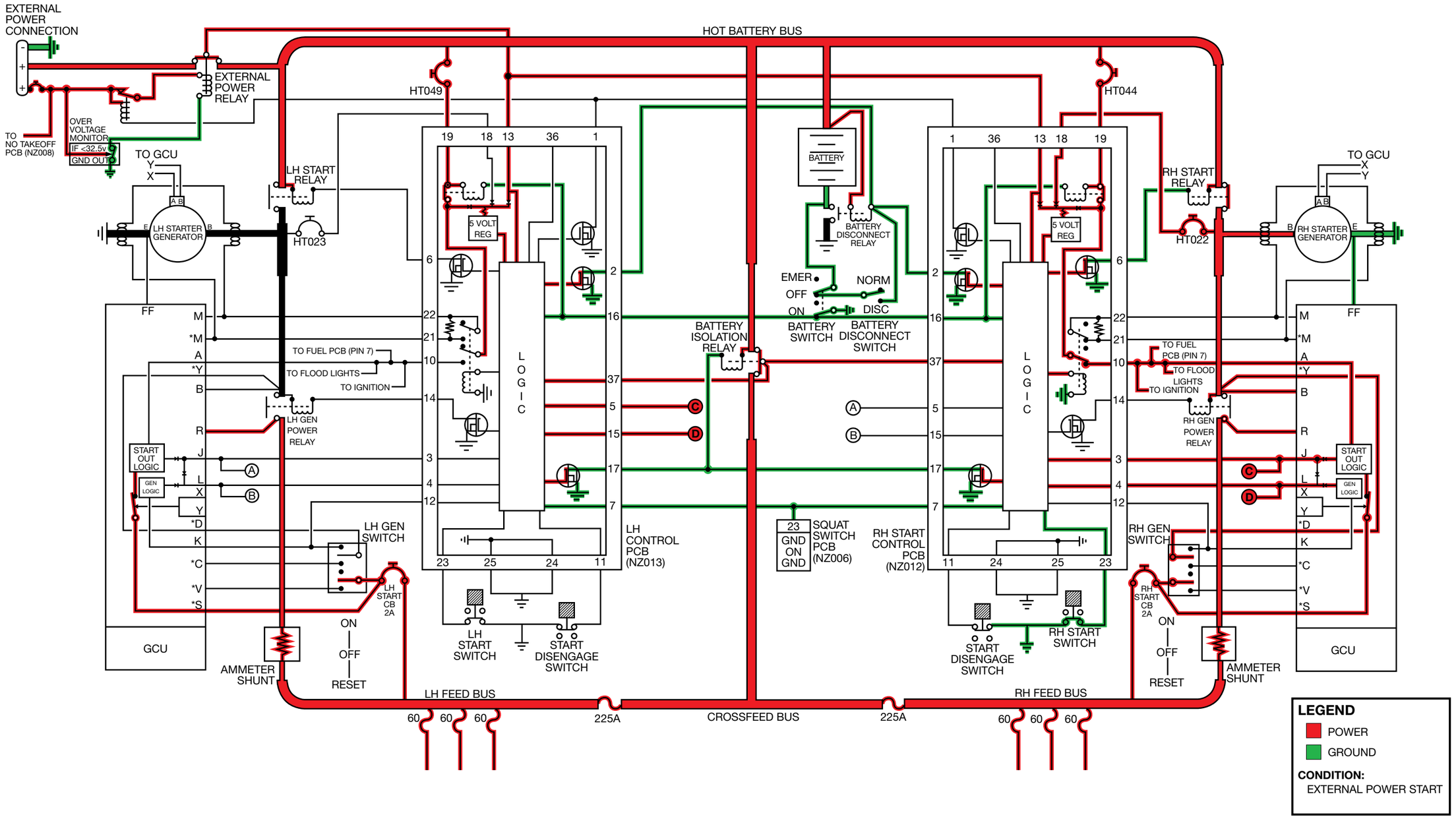


Figure 24-19. Simplified Electrical System—External Power Start

EXTERNAL POWER START RH ENGINE

CONDITIONS

1. External power start (right engine)

OBJECTIVES

1. Energize open the battery disconnect relay
2. Initiate the right start circuit.
3. Latch the start circuit.

SEQUENCE OF EVENTS

1. Ground on pin 7 of both start PCB's.
2. Ground on pin 23 of right start PCB.
3. Battery disconnect relay opens when either of the following occurs:
   - A. Power in on pins 13 (external power on), 3 & 4 (start power from right GCU) provides a ground on pin 2 of the right start PCB.
   - B. Power in on pins 13 (external power on), 5 & 15 (start power from right GCU) provides a ground on pin 2 of the left start PCB.
4. Right start relay closes when:
   - A. Power output from PAL causes K1 PAL relay to initially energize, closing 2 sets of contacts.
     - (1) One set of contacts short Pins 21 & 22 of start PCB together disabling ground fault sensing circuit of GCU.
     - (2) Other set of contacts apply power to pin 10 of the start PCB. The following circuits are affected.
       - a. Overhead floodlights ON full bright
       - b. Power to pin 5 of ignition PCB (no effect until throttle is positioned in idle).
       - c. Power to pin 7 of fuel PCB causing fuel boost pump to come ON.
       - d. Power to pin A of GCU.
   - B. Power on pin A of GCU supplies power on pins J and L to pins 3 & 4 of the right start PCB.
   - C. Power to PAL from pin 3 of start PCB activates the following circuits.
     - (1) Ground on pin 6 of right start PCB energizes the start relay closed.
     - (2) Start relay

NOTES

NOTES

CHAPTER 25
EQUIPMENT & FURNISHINGS

INTRODUCTION

This chapter provides information on the equipment and furnishings in the Citation XL/XLS/XLS+ flight compartment, passenger compartment and baggage compartment. Emergency equipment and insulation are also included in this chapter. Special order equipment/ furnishings are not defined in this chapter.

GENERAL

This chapter is divided into sections and subsections to assist maintenance personnel in locating specific equipment and furnishings. A brief description of each section herein is as follows.

The Flight Compartment section—Describes the upholstery, trim and equipment in the flight compartment. It includes the headliner, window trim, windshield trim, upholstery, glare shield, pedestal covers, sunvisors, carpet, seats and equipment, such as navigational chart cases, oxygen masks and smoke goggles.

The Passenger Compartment section—Describes equipment and furnishings within the passenger compartment. It includes the headliner, passenger service units (PSU), upholstery, trim, carpet, seats, couch, dividers, forward closet, tables, seat drawers, magazine racks and storage cabinets.

The Refreshment Center section—Describes maintenance practices for the standard and optional refreshment centers. The storage cabinets are also included in this section.

The Vanity section—Describes the standard and deluxe vanity with sink.

The Baggage Compartment section—Describes the upholstery within the baggage compartment. It also includes loose equipment.

The Emergency Equipment section—Describes the locator transmitter system, life vests and water barrier.

The Insulation section—Describes the insulation and acoustical dampening material that is installed in the aircraft.

Figure 25-1. Floor Plan (XL/XLS)

NOTES

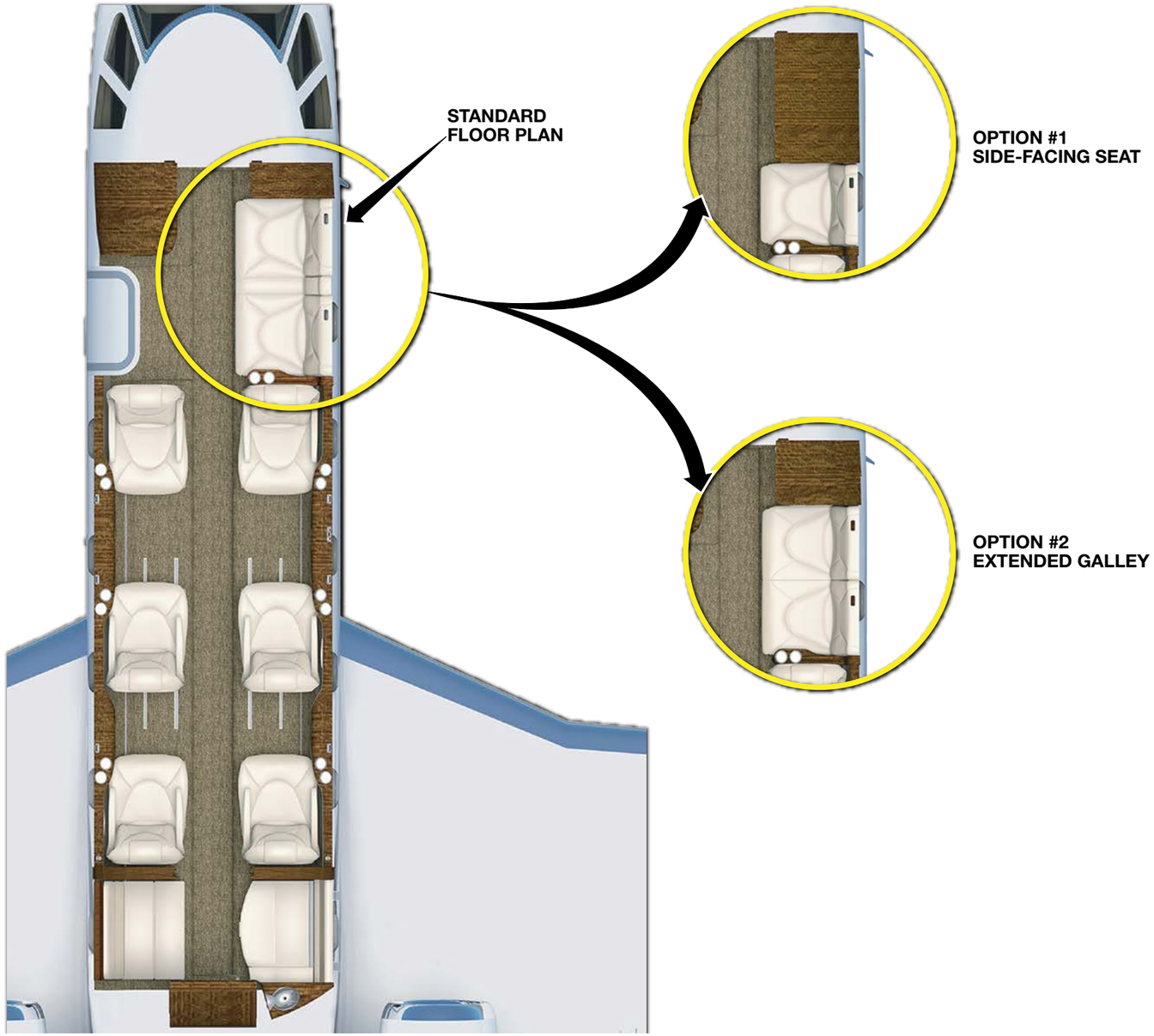


Figure 25-2. Floor Plan with Options (XLS+)

NOTES

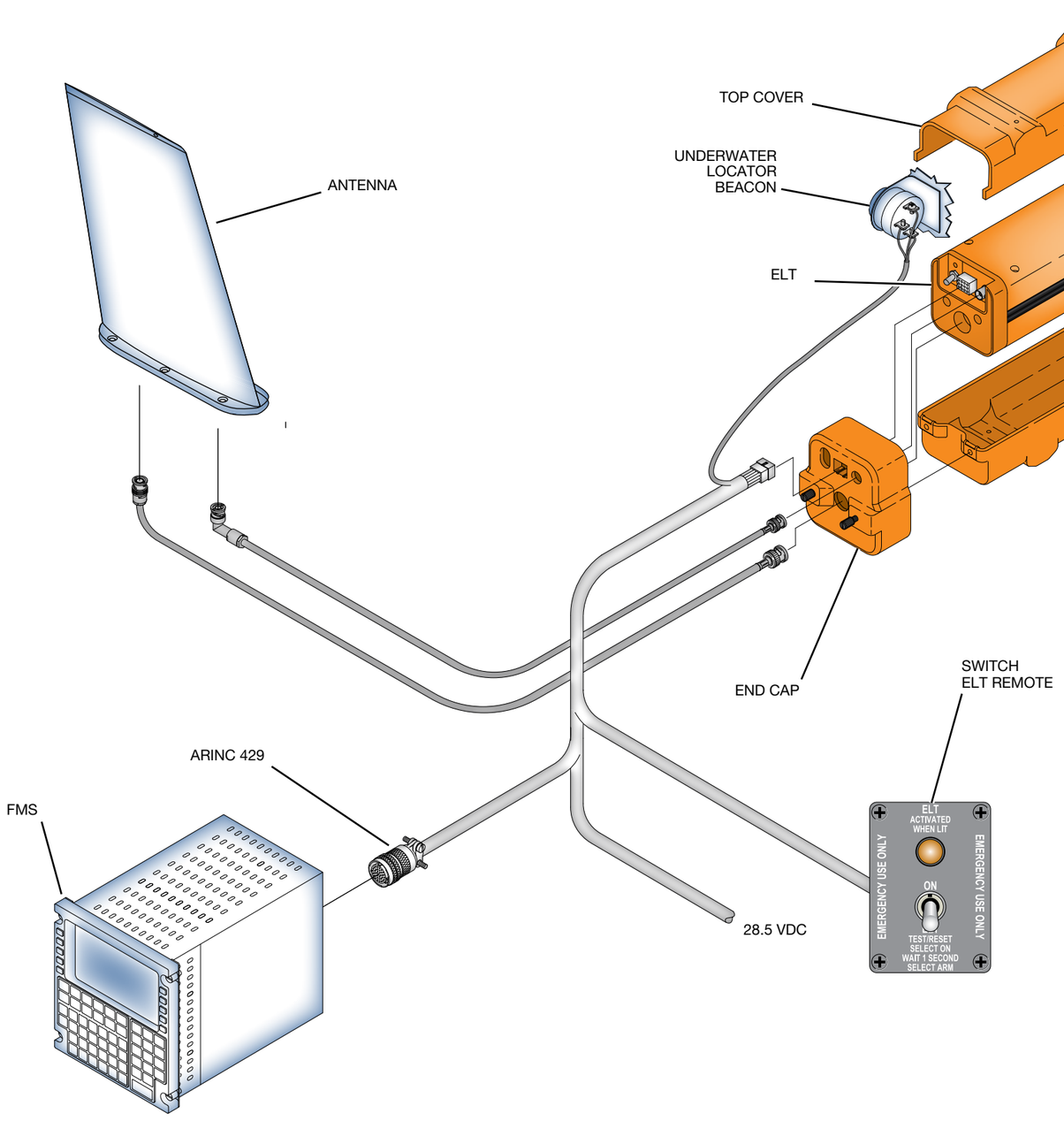


Figure 25-3. Artex ELT 110-4 Locator Beacon System

NOTES

CHAPTER 26
FIRE PROTECTION

INTRODUCTION

This chapter presents the fire protection system on the Citation 560XL/XLS/XLS+ aircraft. Included in this chapter is discussion of fire detection and fire-extinguishing systems, along with detailed discussion of the fire detection system control unit. Components and their operation are listed in addition to general maintenance considerations and functional and operational checks. References for this chapter and further specific information can be found in Chapters 5—"Time Limits/Maintenance Checks," Chapter 12—"Servicing," and Chapter 26—"Fire Protection," of the *Aircraft Maintenance Manual (AMM)*.

GENERAL

Fire protection for the 560XL/XLS aircraft consists of a detection system and extinguishing system. Provisions for fire detection are installed in the left and right engine compartments and consist of a closed-loop sensing system and detector control unit that illuminates the respective red LH–RH ENGINE FIRE switchlights on the cockpit glareshield when a fire or overheat condition is present. The warning light, under a transparent, spring-loaded guard, also serves as a firewall shutoff switch. Fire annunciation on the XLS+ will also result in the MASTER WARNING flashing as well as the ENGINE FIRE L–R red CAS message and associated aural annunciation.

The fire-extinguishing system provided for the engine compartments actuates by lifting the guard and depressing the LH–RH ENGINE FIRE switchlights. This simultaneously closes the respective firewall fuel and hydraulic valves, deenergizes the starter-generator, and arms the two extinguishing bottles.

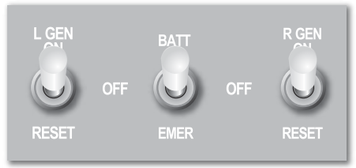
XL/XLS—The firewall shutoff and extinguisher arming are indicated by illumination of the respective L–R LO FUEL PRESS, L–R LO HYD FLOW, F/W SHUTOFF, L–R GEN OFF annunciators, and both white BOTTLE 1–2 ARMED PUSH switchlights.

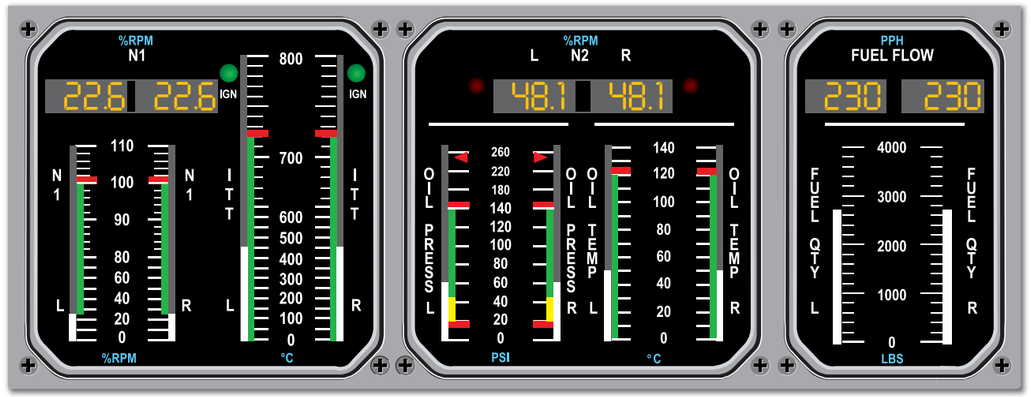
XLS+—The firewall shutoff and extinguisher arming are indicated by illumination of the respective ENGINE FAIL L–R red CAS message, DC GENERATOR FAIL L–R, HYDRAULIC FLOW LOW L–R, WINDSHIELD HEAT INOP L–R amber CAS messages, FIREWALL SHUTOFF L–R white CAS message, and both white BOTTLE 1–2 ARMED PUSH switchlights.

Once armed, either bottle can be discharged to the selected engine by pushing the BOTTLE 1 or BOTTLE 2 ARMED PUSH switchlight. The switchlight will extinguish when it is pushed. Both bottles can be directed to the same engine if necessary.

LEGEND
- FIRE BOTTLE #1
- FIRE BOTTLE #2

CONDITION:
RIGHT ENGINE FIRE
RIGHT ENGINE FIRE SWITCH—PRESSED





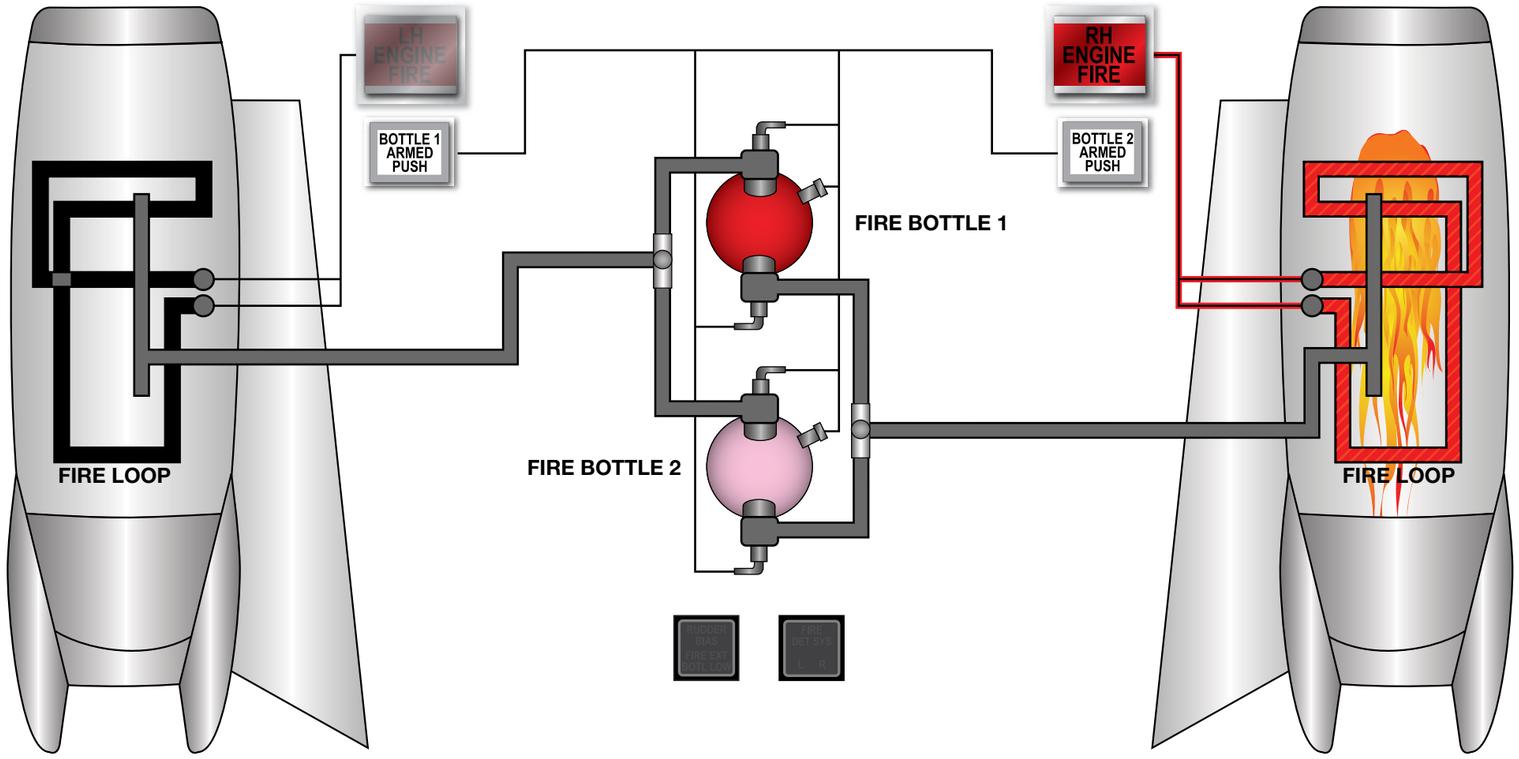


Figure 26-1. Fire Protection—Right Engine Fire—RH Engine Fire Switch Pressed

NOTES

LEGEND

- FIRE BOTTLE #1
- FIRE BOTTLE #2

CONDITION:

RIGHT ENGINE FIRE
RIGHT ENGINE FIRE SWITCH—PRESSED
BOTTLE #1 ARM SWITCH—PRESSED

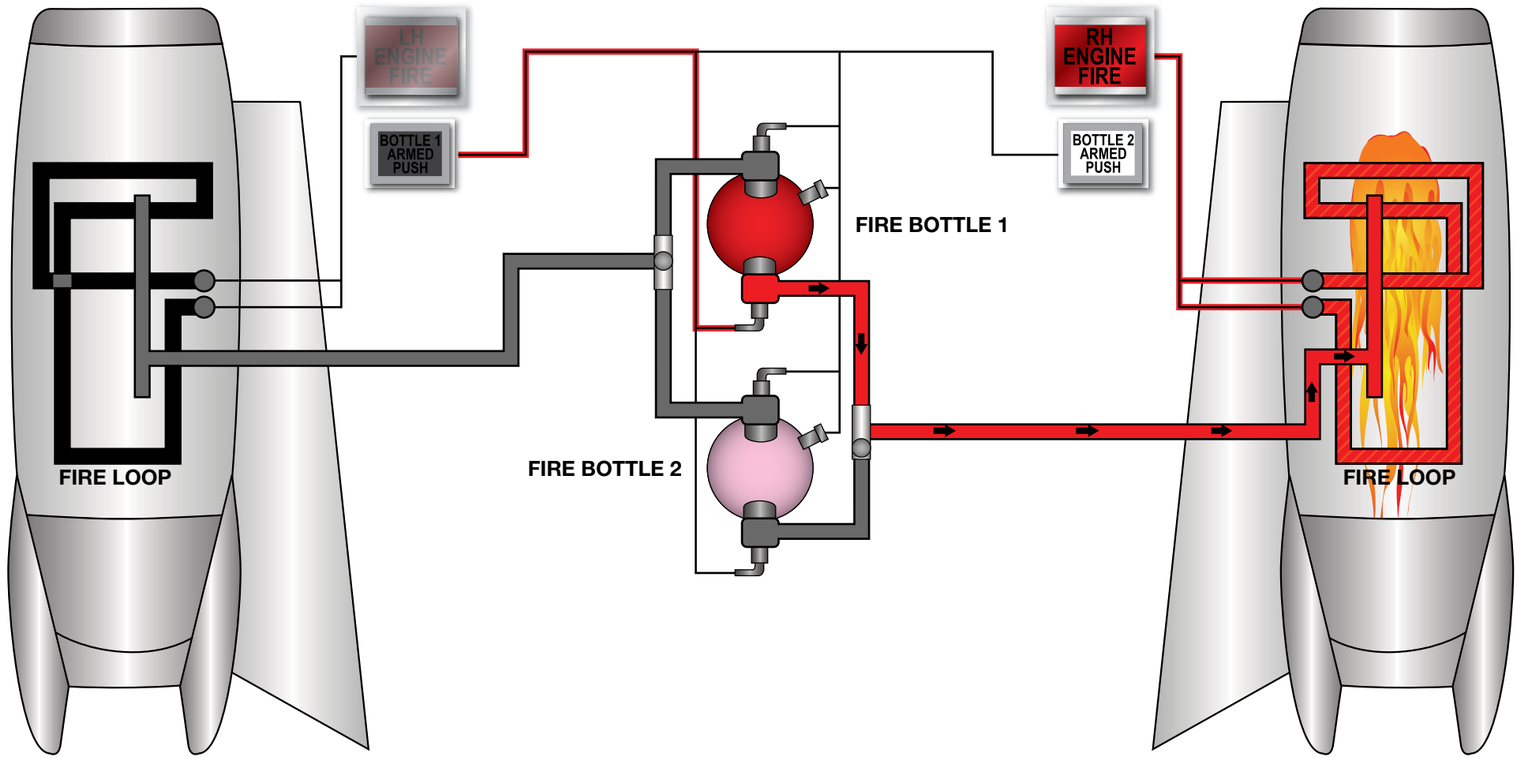


Figure 26-2. Fire Protection—First Bottle

NOTES

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LEGEND

- FIRE BOTTLE #1
- FIRE BOTTLE #2
- FIRE BOTTLE EMPTY

CONDITION:

RIGHT ENGINE FIRE
RIGHT ENGINE FIRE SWITCH—PRESSED
BOTTLE #1 ARM SWITCH—PRESSED
BOTTLE #2 ARM SWITCH—PRESSED

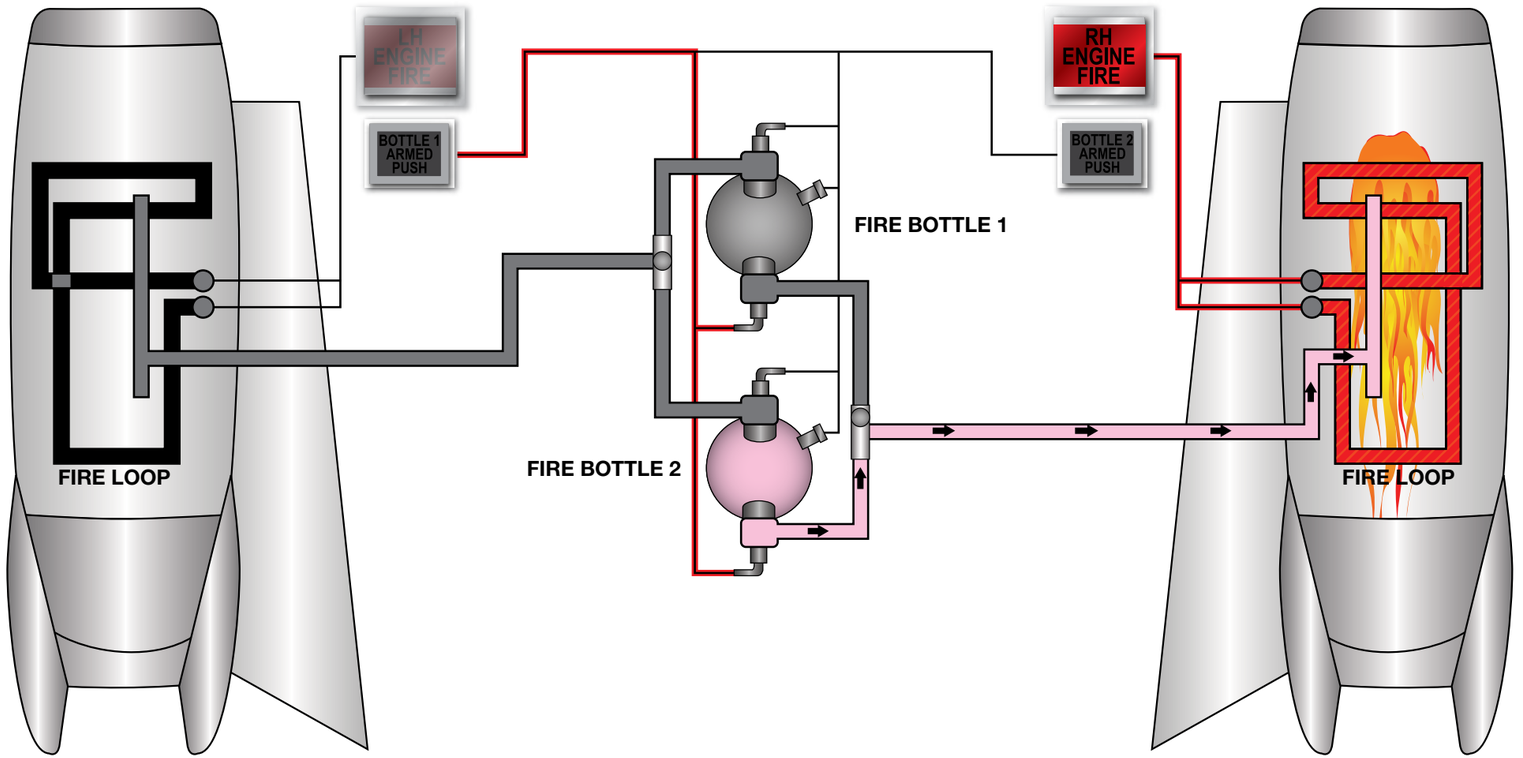

Figure 26-3. Fire Protection—Second Bottle

NOTES

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LEGEND

- FIRE BOTTLE #1
- FIRE BOTTLE #2
- FIRE BOTTLE EMPTY

CONDITION:

RIGHT ENGINE FIRE SWITCH—PRESSED
BOTTLE #1 ARM SWITCH—PRESSED
BOTTLE #2 ARM SWITCH—PRESSED
RIGHT ENGINE FIRE EXTINGUISHED

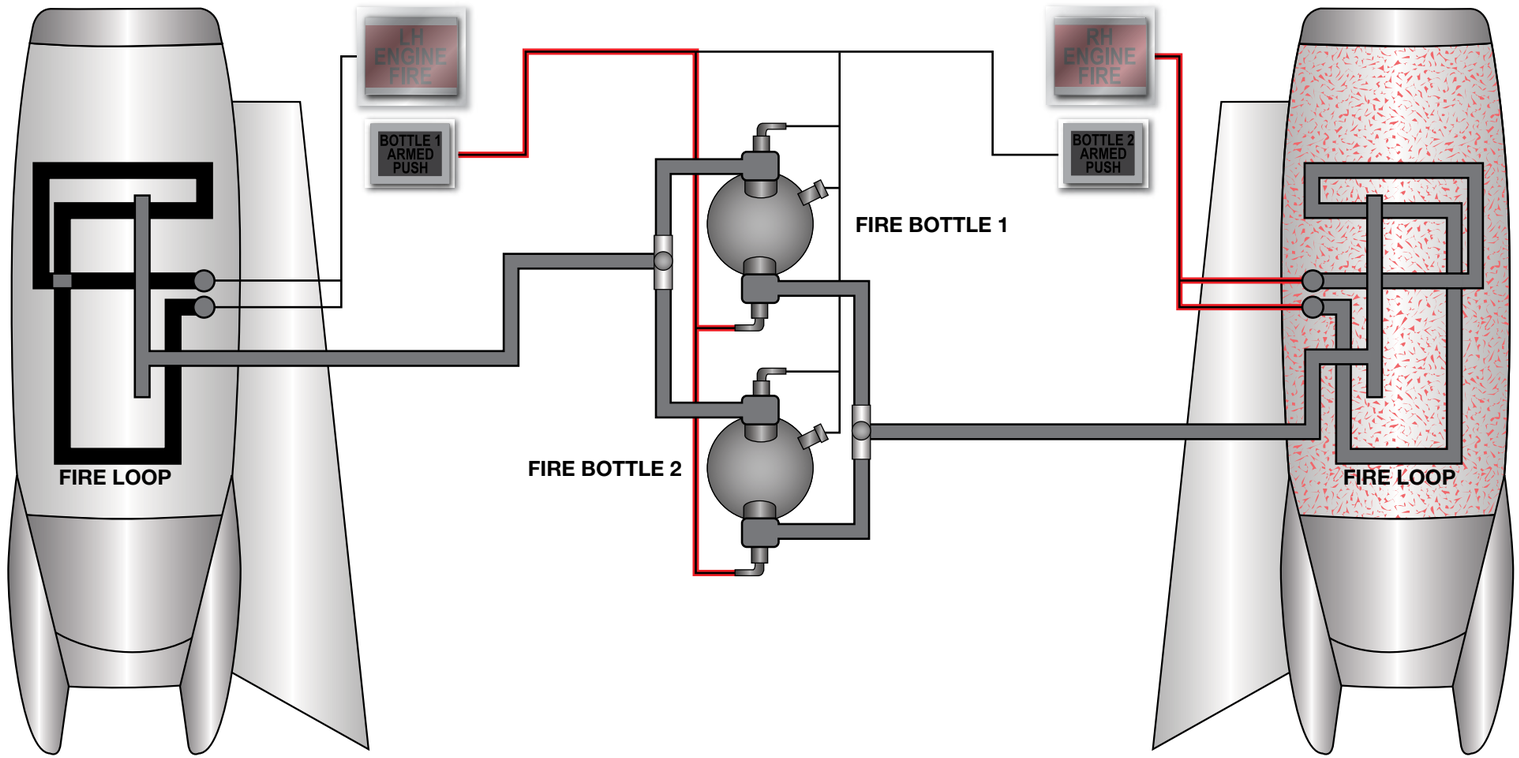

Figure 26-4. Fire Protection—Right Engine Fire Out

NOTES

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NOTES

CHAPTER 27
FLIGHT CONTROLS

INTRODUCTION

This chapter provides a description of the flight control systems used on the 560XL/XLS/XLS+ aircraft, with a description of components and their operation. General maintenance considerations are included, with an introduction to functional and operational checks. References for this chapter and further specific information can be found in Chapter 5—“Time Limits/Maintenance Checks,” Chapter 12—“Servicing,” Chapter 20—“Standard Practices-Airframe,” and Chapter 27—“Flight Controls,” of the *Aircraft Maintenance Manual (AMM)*.

GENERAL

Primary flight controls include elevators, ailerons, and rudder which are mechanically operated and controlled. They control the aircraft movement about the three axes of flight (pitch, roll, and yaw). Trim devices are attached and operated either mechanically or electrically. Flaps that increase lift and drag are actuated hydraulically and controlled mechanically. Speedbrakes that produce drag and slow the aircraft are hydraulically actuated and manually controlled. A pneumatic rudder bias system reduces rudder pedal force to achieve directional control during single engine operations. Warning and indicating systems are also provided.

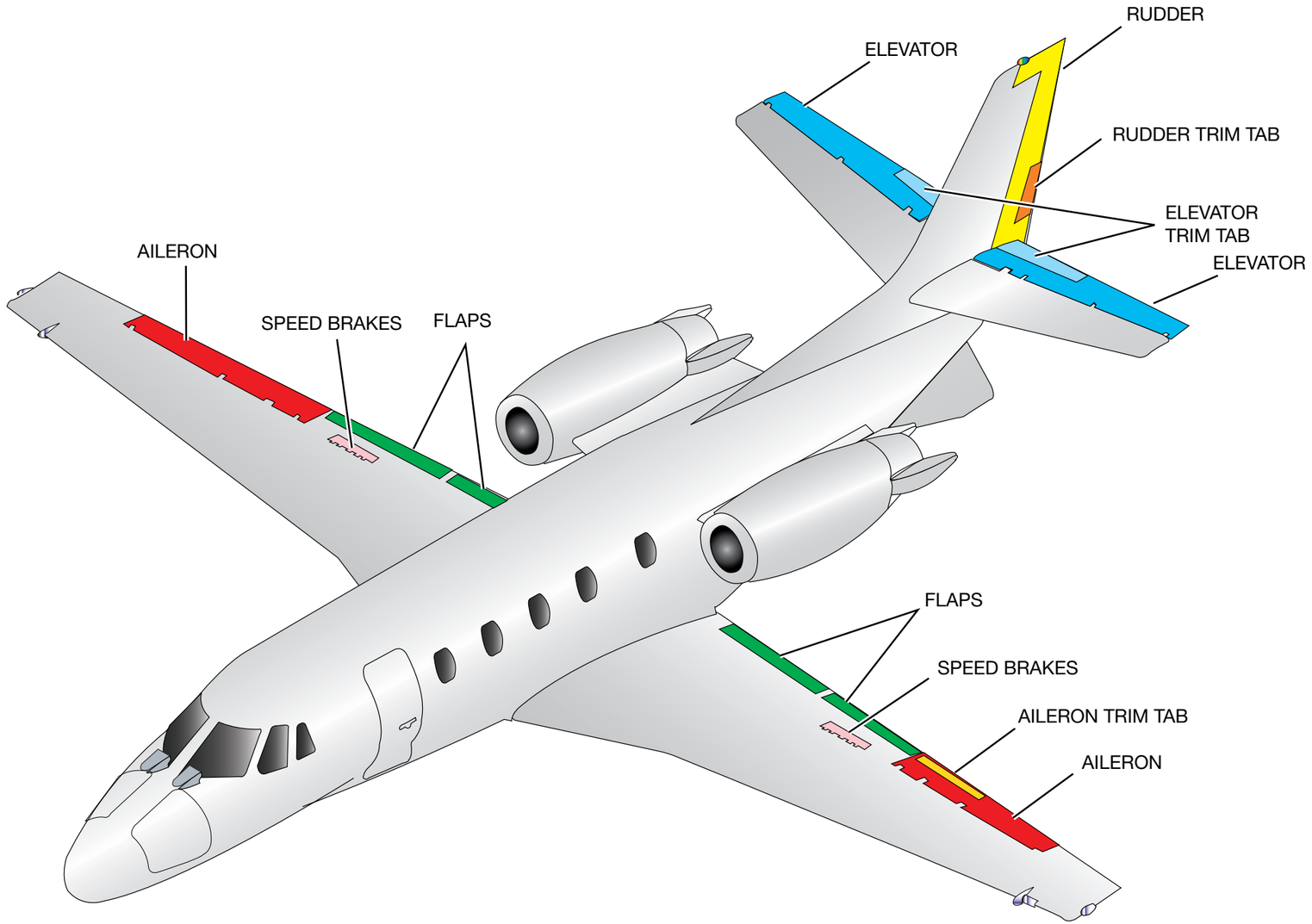

Figure 27-1. Flight Controls Overview

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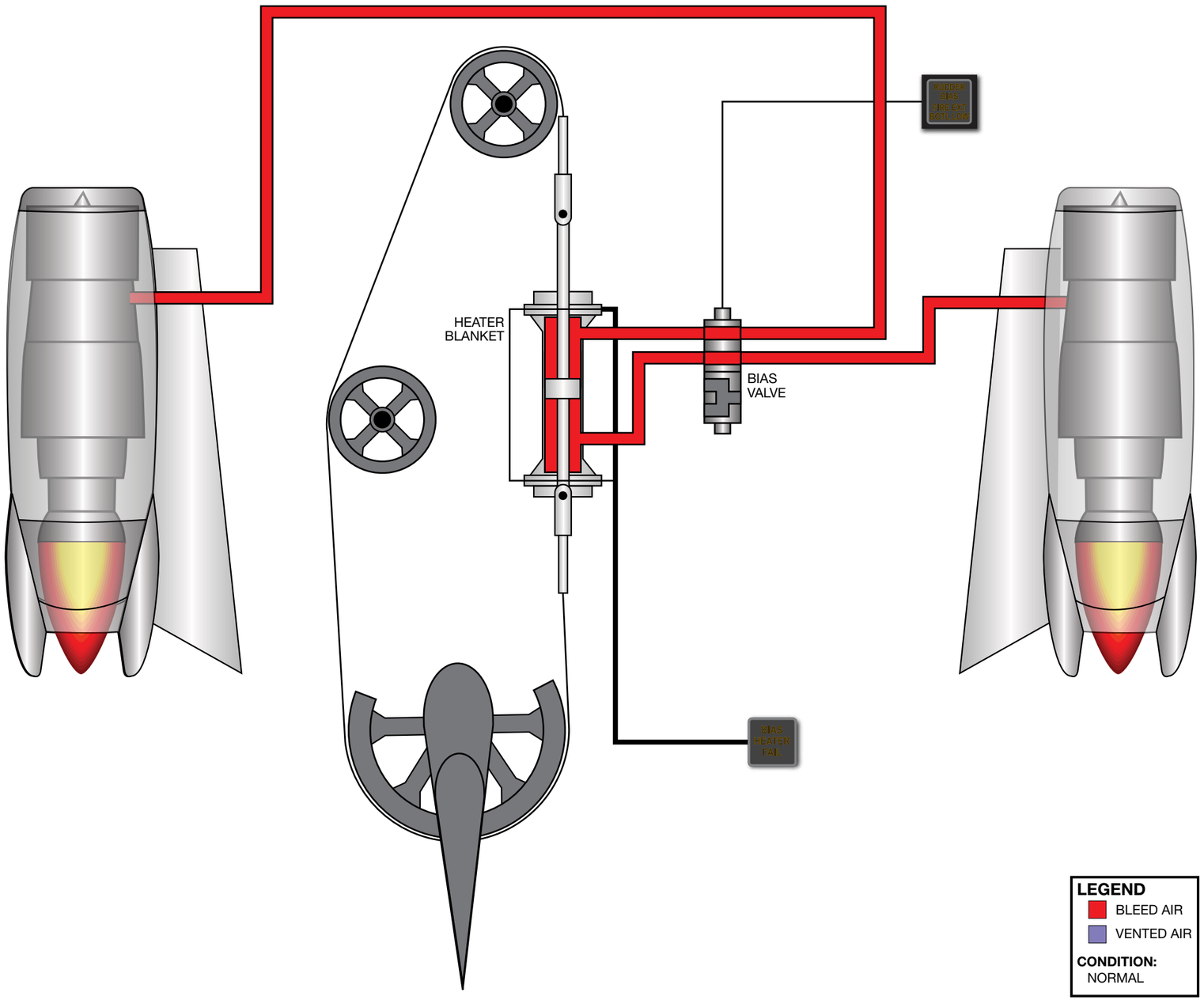

Figure 27-2. Rudder Bias (Sheet 1 of 3)

NOTES

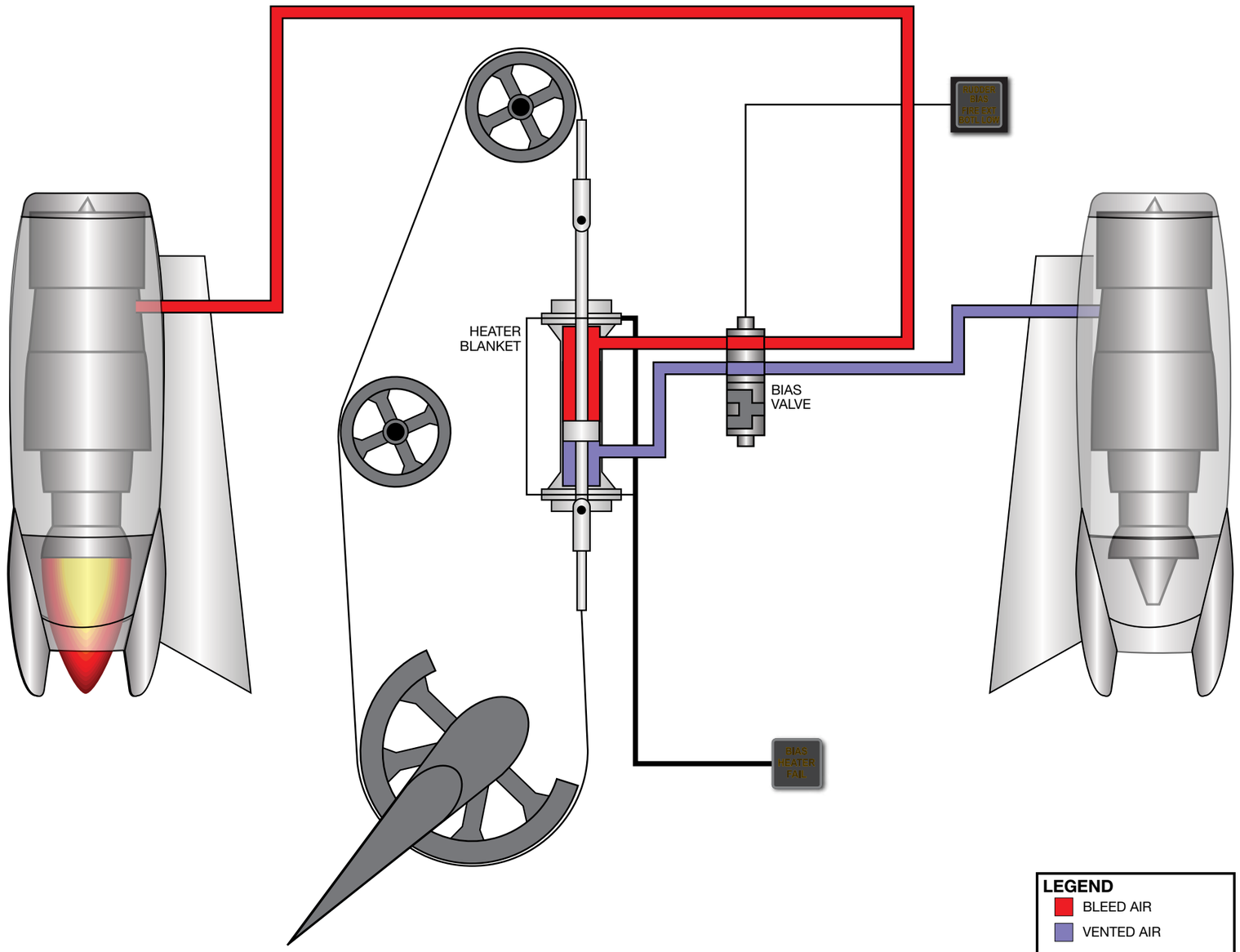

Figure 27-2. Rudder Bias (Sheet 2 of 3)

NOTES

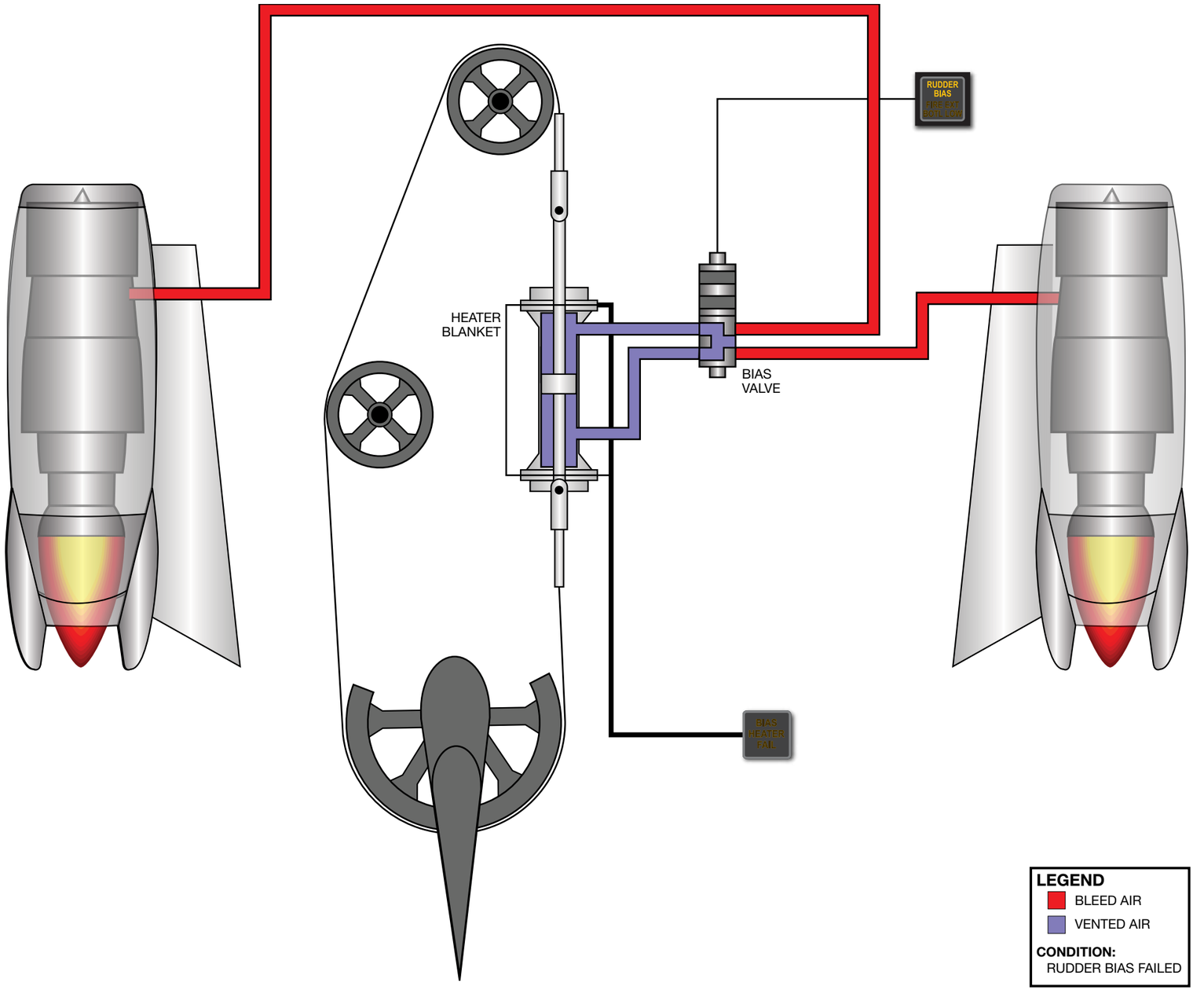

Figure 27-2. Rudder Bias (Sheet 3 of 3)

NOTES

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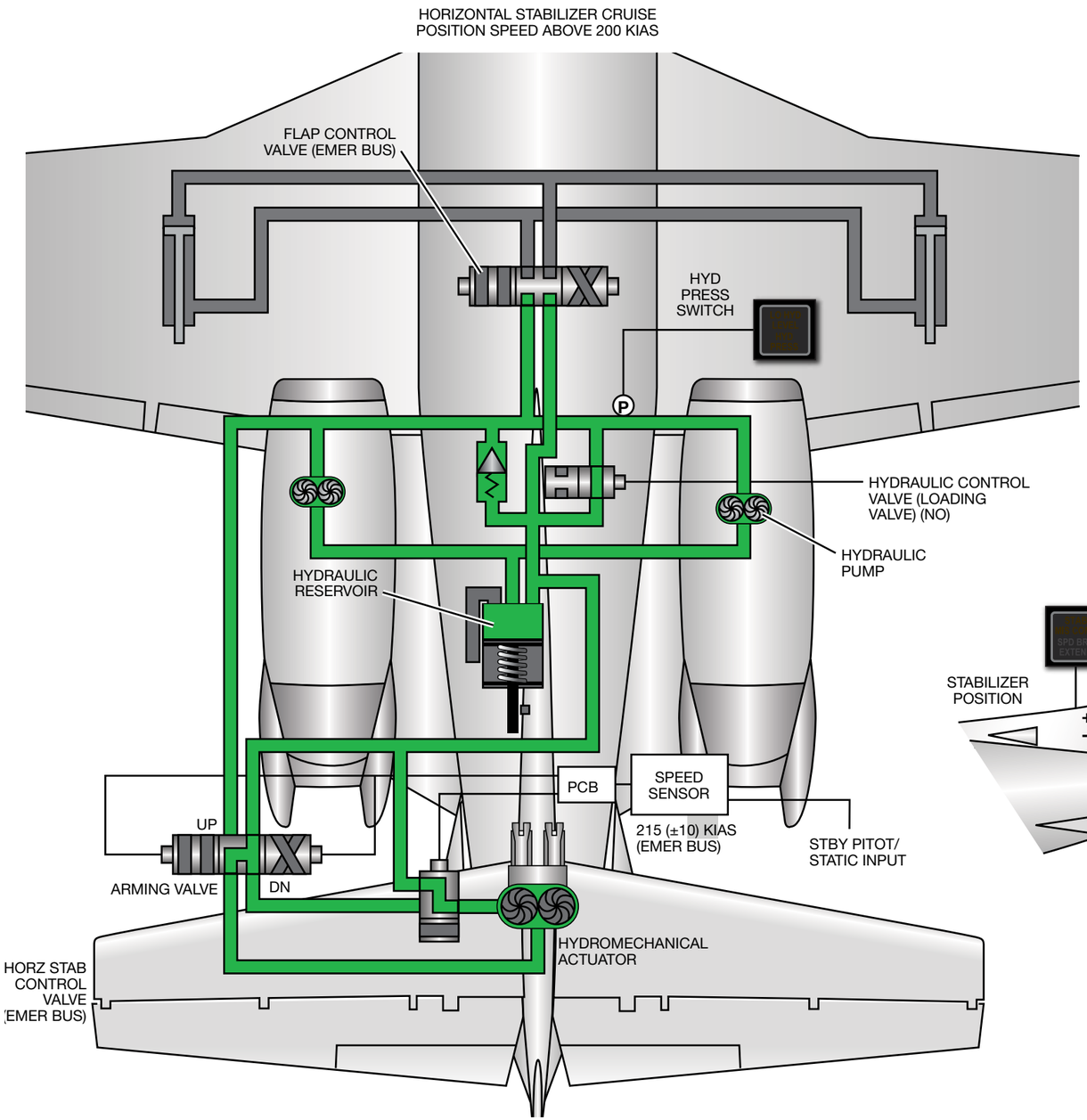

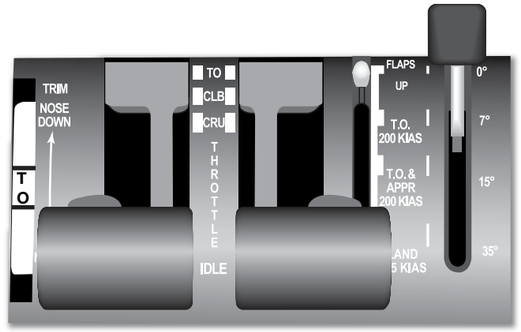

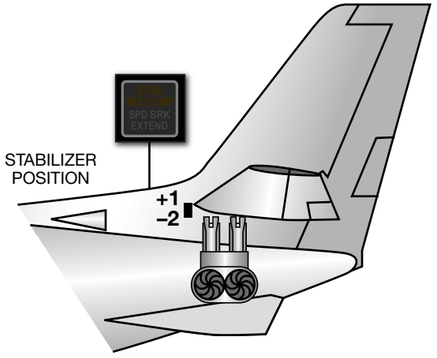

LEGEND
- LOW HYDRAULIC PRESSURE
- HIGH HYDRAULIC SUPPLY PRESSURE
- RETURN PRESSURE

CONDITION:
STABILIZER—UP
FLAPS—UP

Figure 27-3. Stabilizer—Up

NOTES

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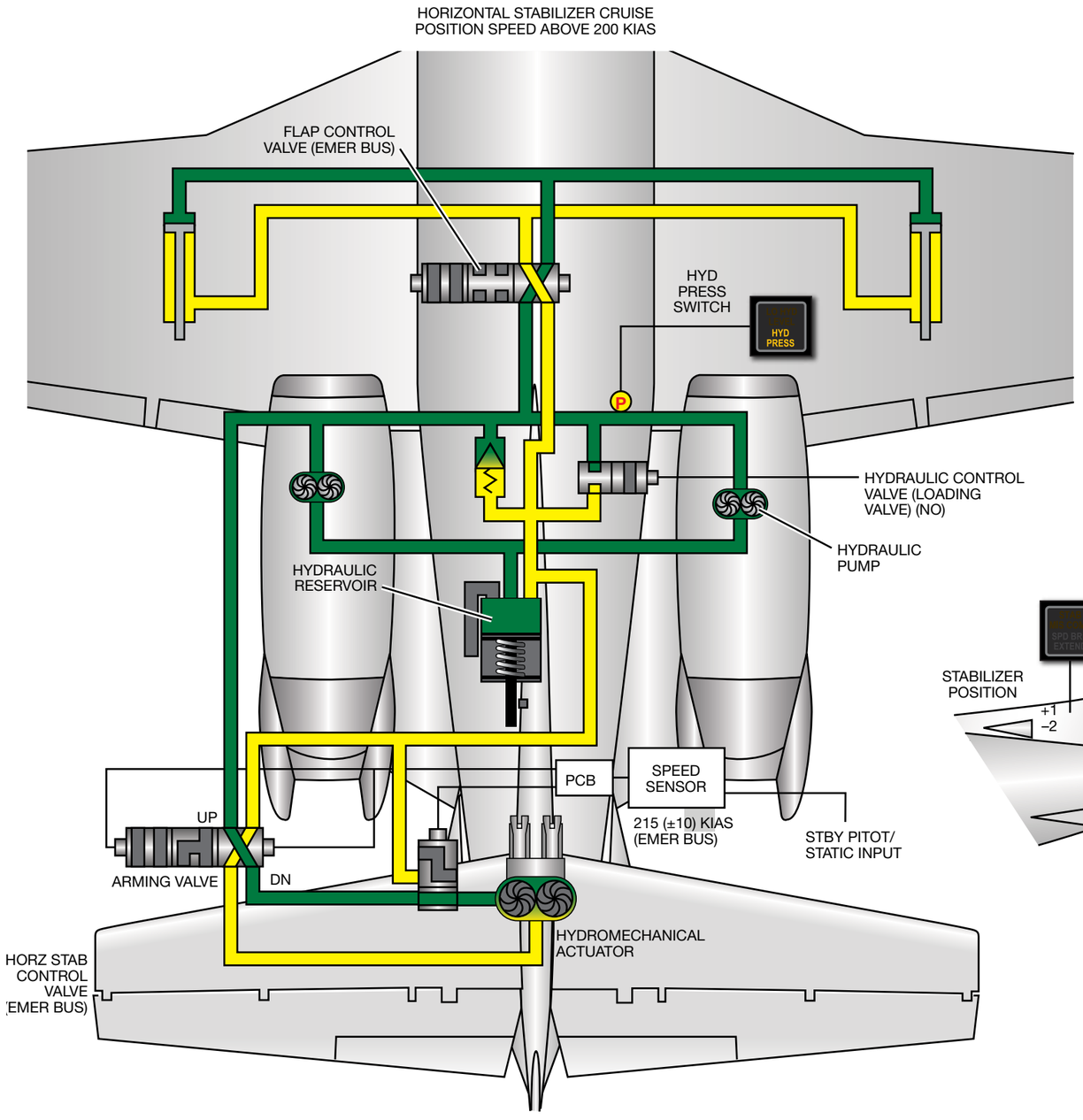

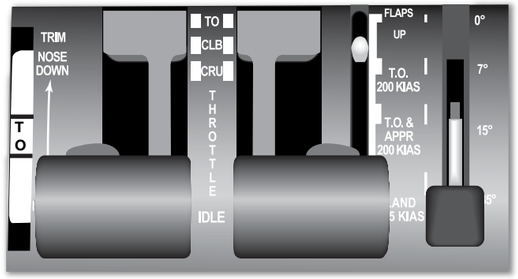

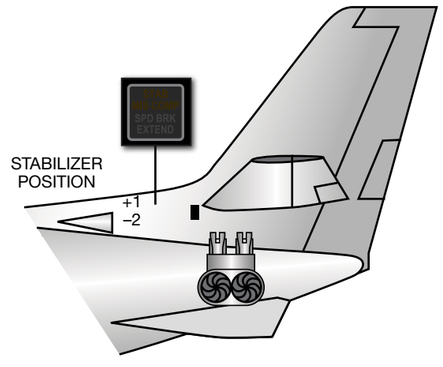

LEGEND
- LOW HYDRAULIC PRESSURE
- HIGH HYDRAULIC SUPPLY PRESSURE
- RETURN PRESSURE

CONDITION:
STABILIZER—GOING DOWN
FLAPS—GOING DOWN

NOTES

Figure 27-4. Stabilizer and Flaps in Transition for Takeoff/Landing

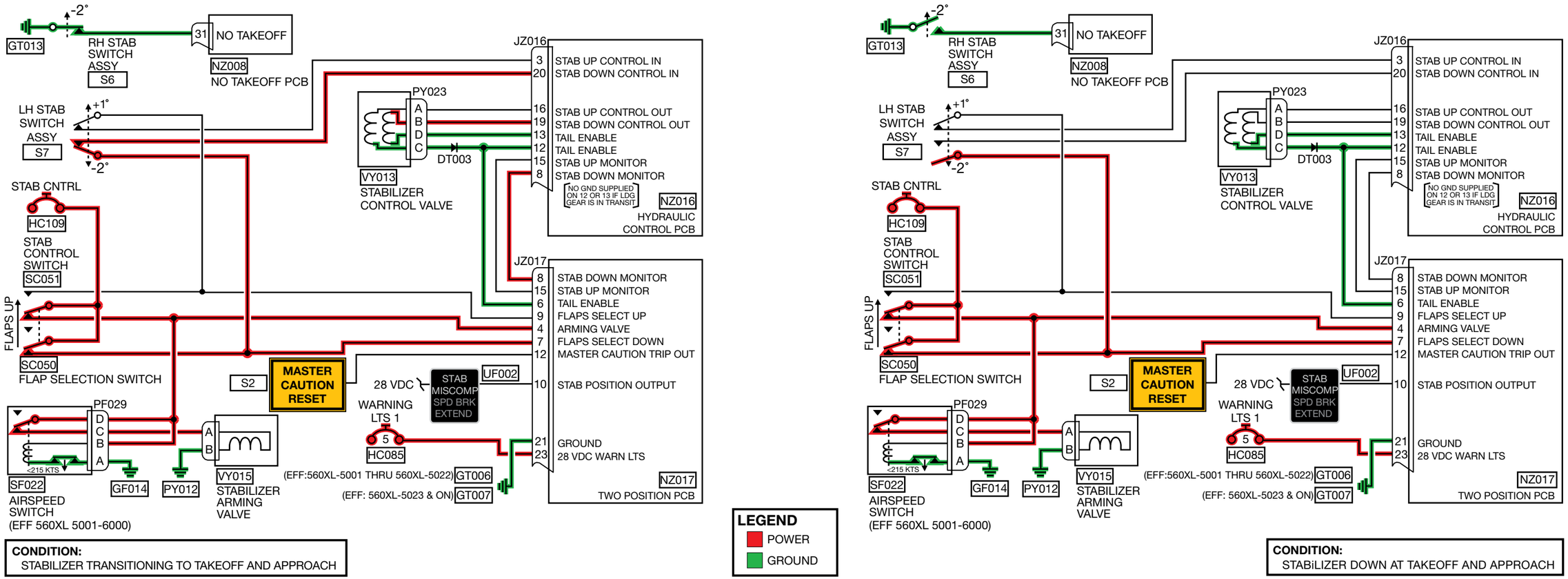

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Figure 27-5. Horizontal Stabilizer Control (Sheet 1 of 2)

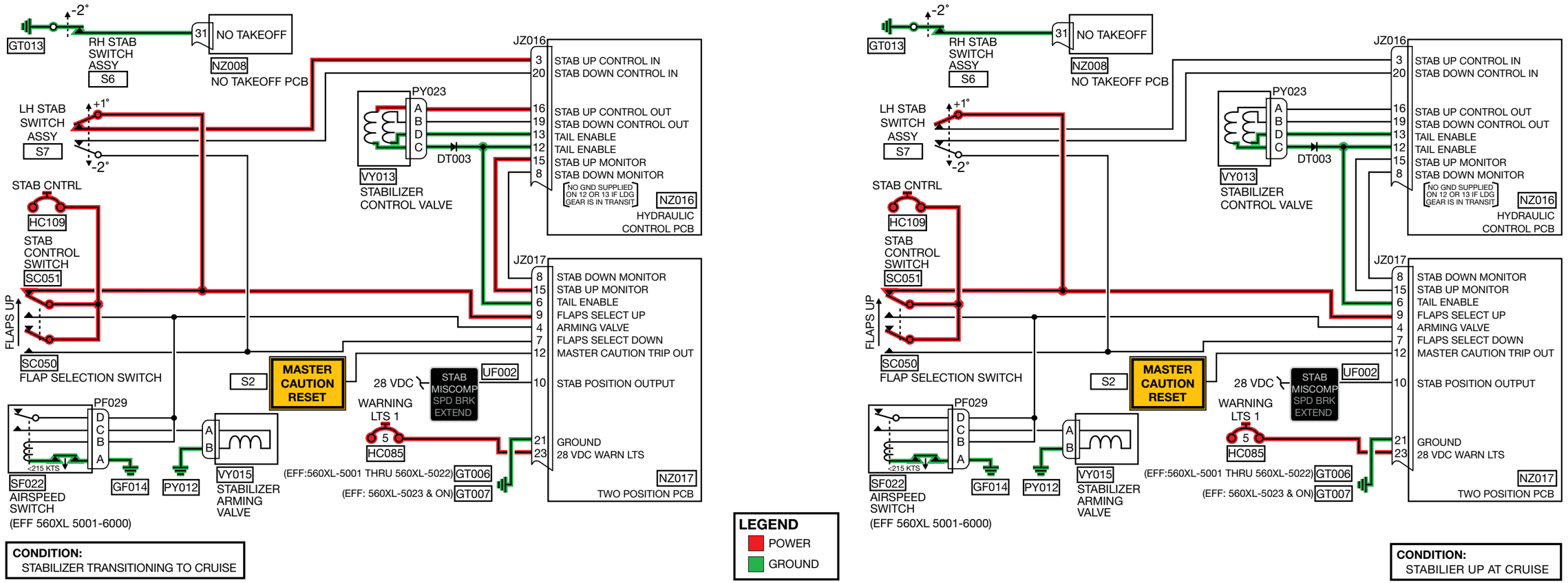

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Figure 27-5. Horizontal Stabilizer Control (Sheet 2 of 2)

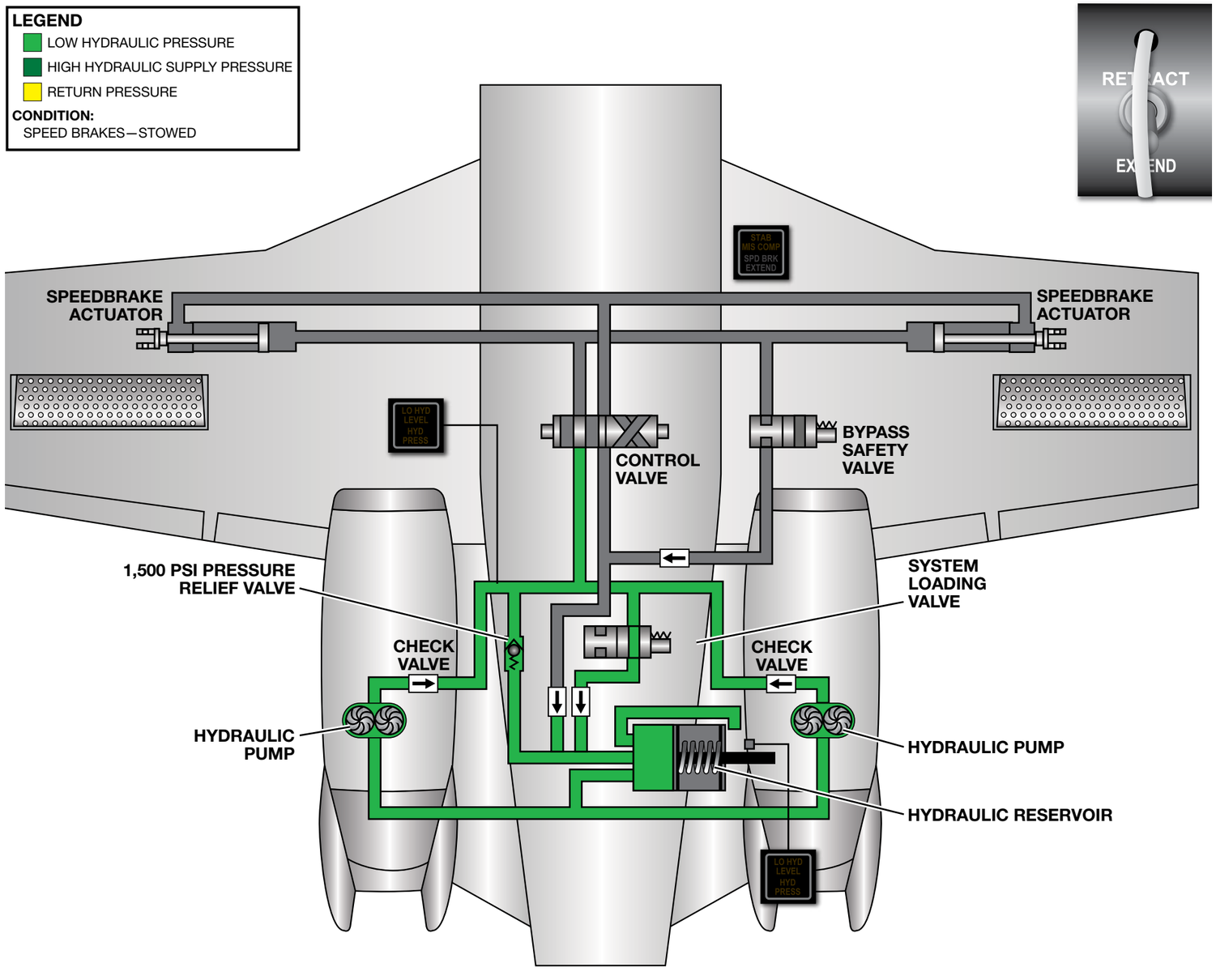

Figure 27-6. Speed Brake Operation (Sheet 1 of 3)

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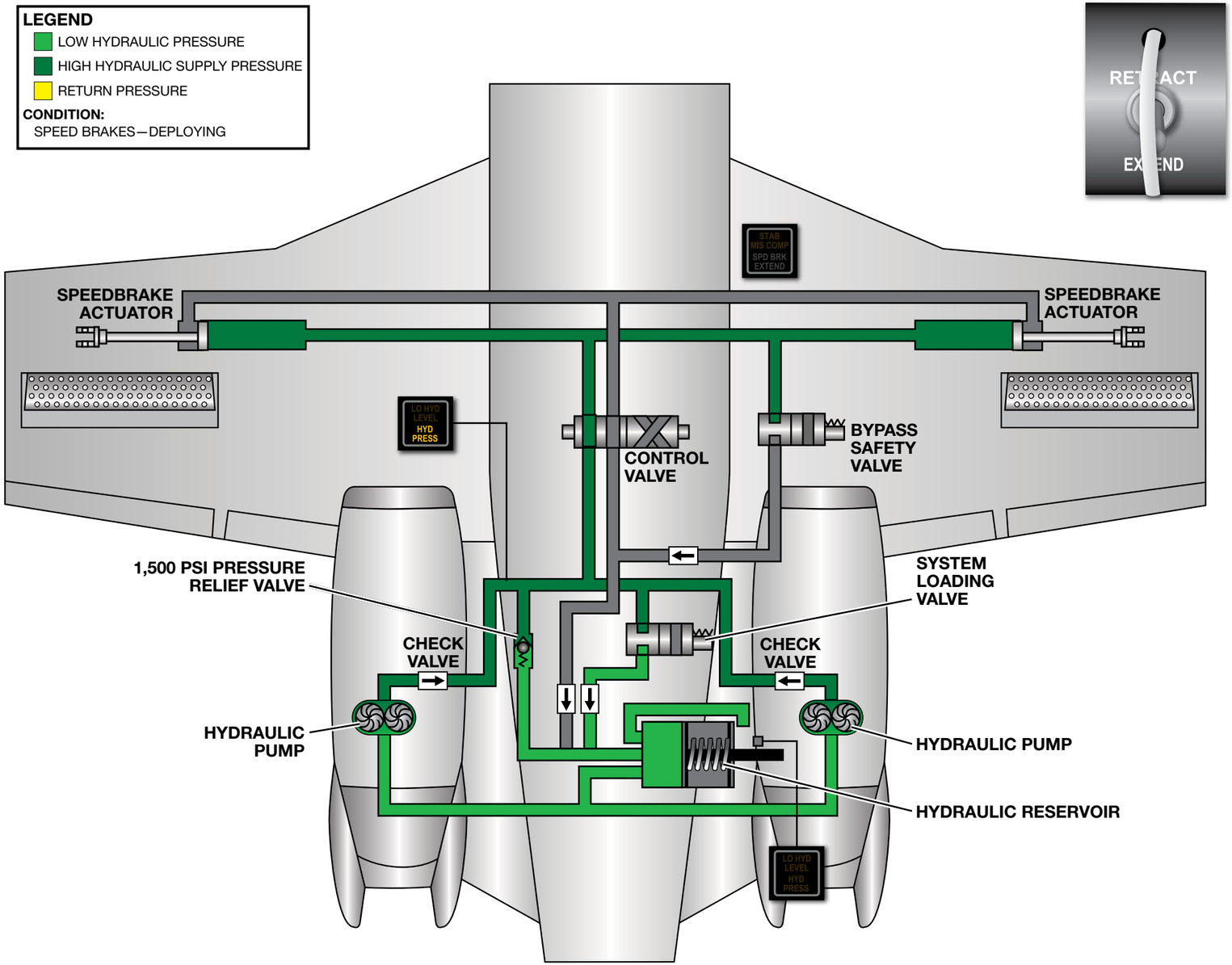

Figure 27-6. Speed Brake Operation (Sheet 2 of 3)

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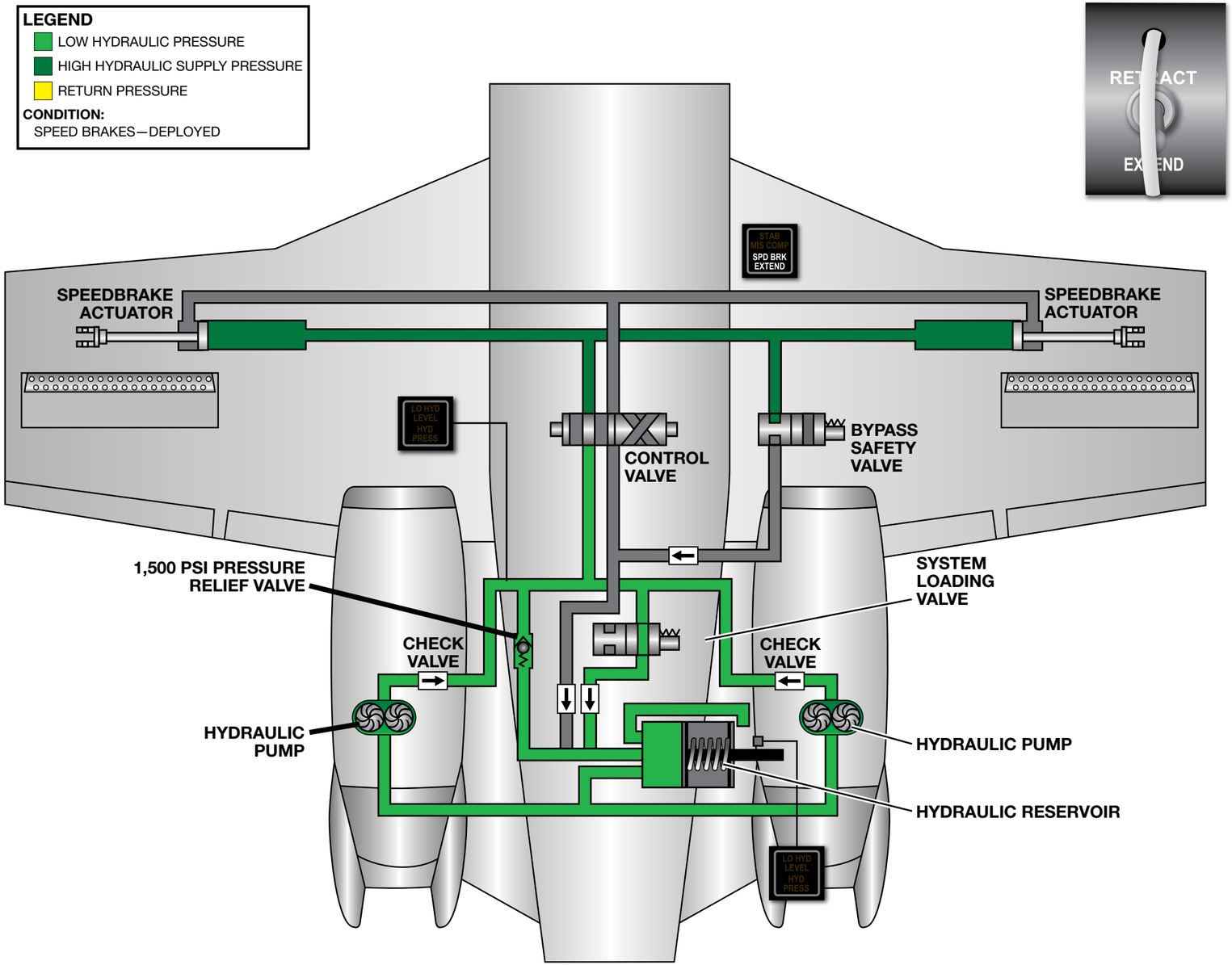

Figure 27-6. Speed Brake Operation (Sheet 3 of 3)

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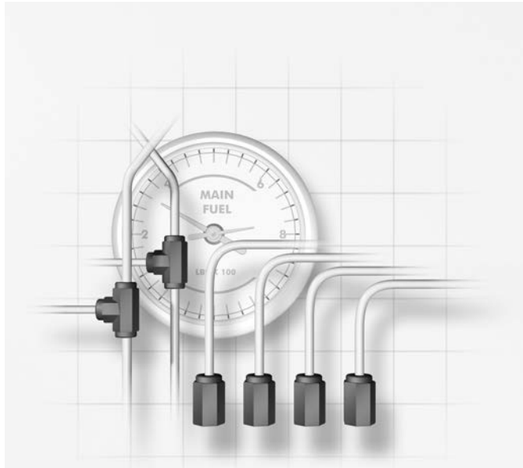
CHAPTER 28 FUEL



INTRODUCTION

This chapter presents the fuel system for the Citation 560 XL/XLS/XLS+ aircraft and is limited to the airframe fuel system only. System discussion begins from the point of fueling the aircraft and continues to delivery of fuel to the engine, with emphasis given to components and their operation. General maintenance considerations are included, accompanied by functional and operational checks. References for this chapter can be found in Chapters 5—“Time Limits/Maintenance Checks,” Chapter 12—“Servicing,” and Chapter 28—“Fuel,” of the *Aircraft Maintenance Manual (AMM)*.

GENERAL

The sections contained in this chapter include:

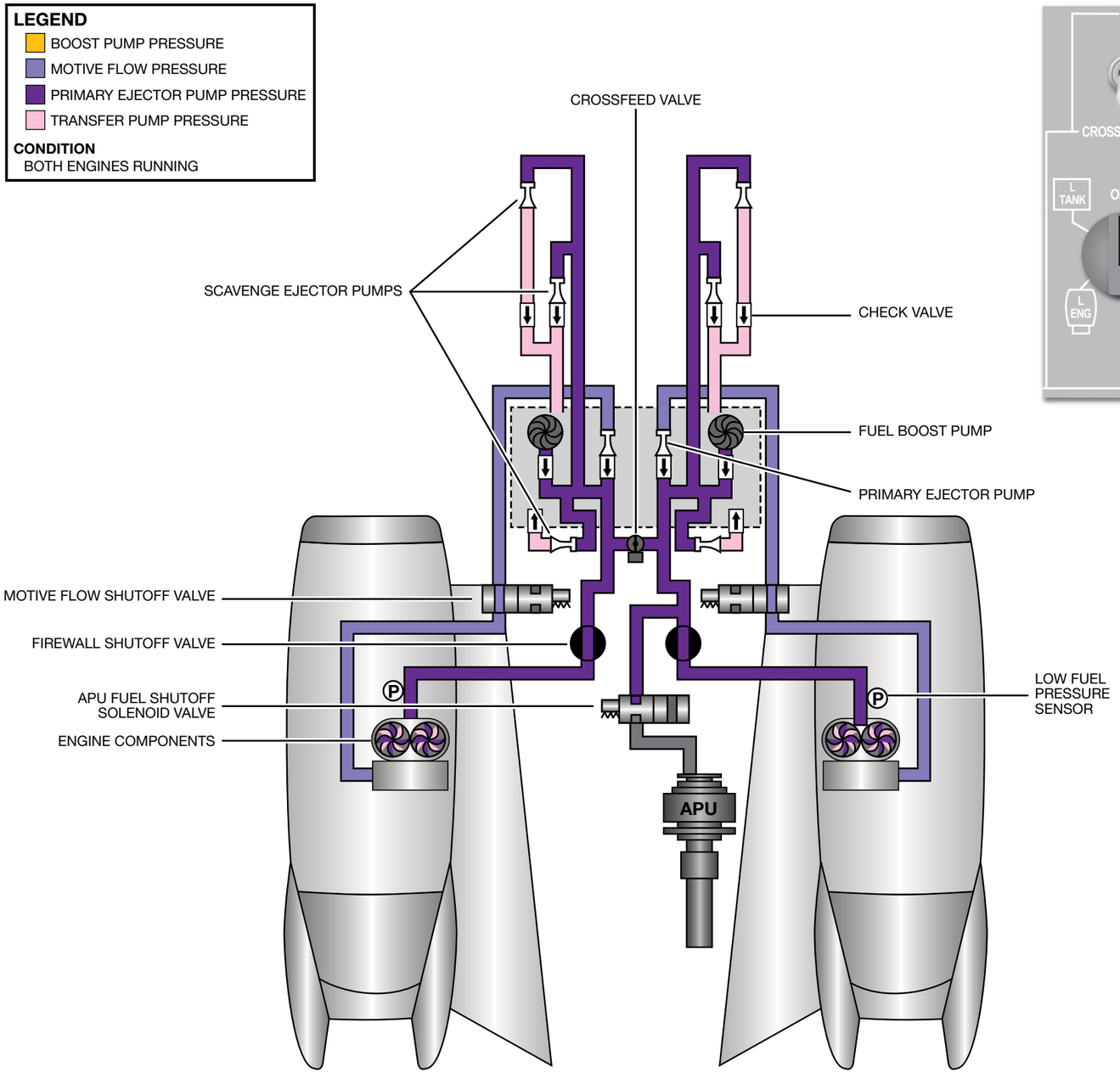
- Fuel storage
- Single-point refuel/defuel
- Fuel distribution
- Fuel crossfeed
- Fuel indicating

The storage section covers:

- Ventilation systems
- Cell and tank interconnectors
- Overwing filler necks and caps
- Reservoir feed pumping systems
- Reservoirs within the tanks which are not a part of the distribution system (vent tank), etc.

The distribution section contains general coverage of the portion of the system used to distribute fuel from the filler connector to the storage system. It also covers the portion from the storage system, including the powerplant fuel quick-disconnect and single-point refueling/defueling system, as well as the crossfeed system. Items such as plumbing, pumps, valves, controls, etc, are included.

The indicating section contains pictorial and general coverage of that portion of the system used to indicate the quantity and temperature of the fuel. This does not include engine fuel flow or pressure.



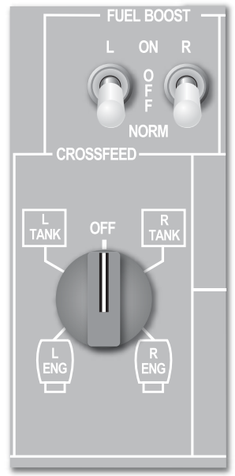


Figure 28-1. Fuel Flow—Normal

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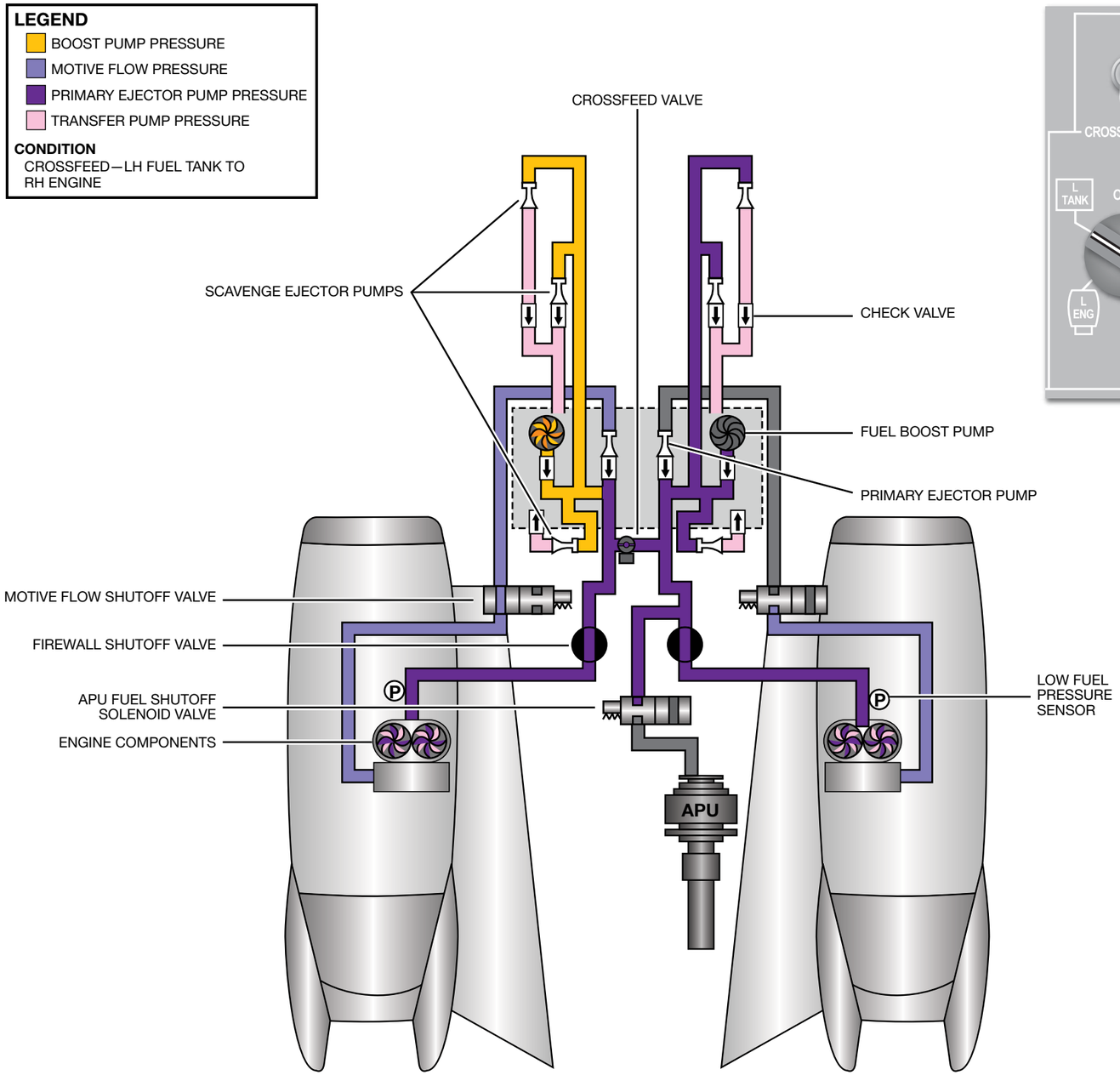

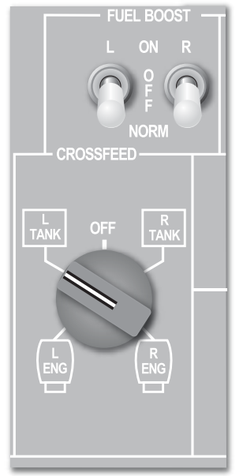

Figure 28-2. Fuel Flow—LH Crossfeed

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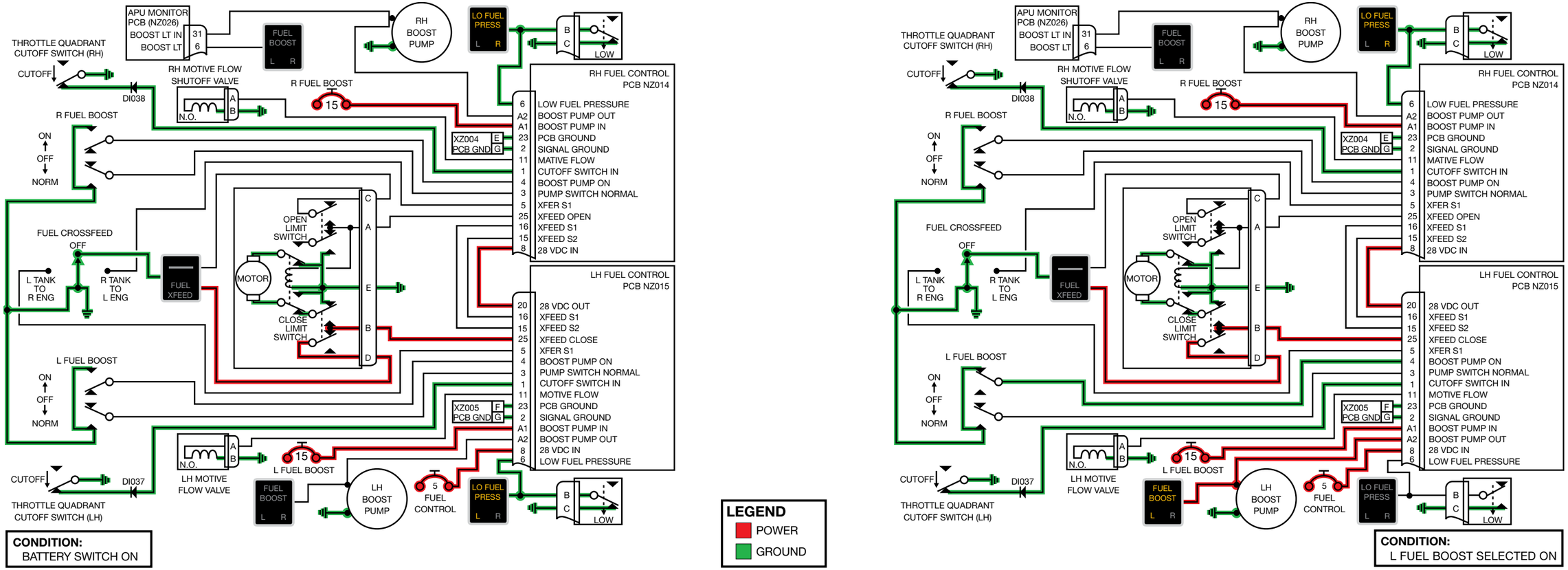

NOTES

Figure 28-3. Fuel Control System (Sheet 1 of 3)

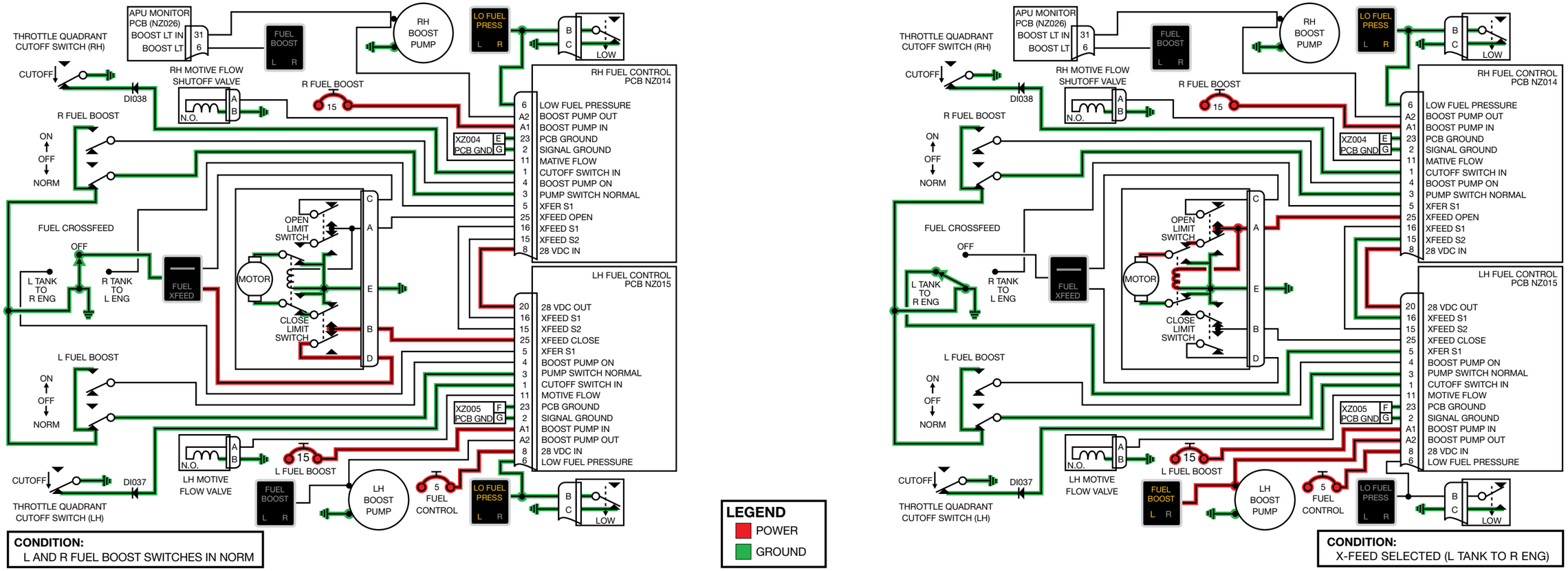

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Figure 28-3. Fuel Control System (Sheet 2 of 3)

28

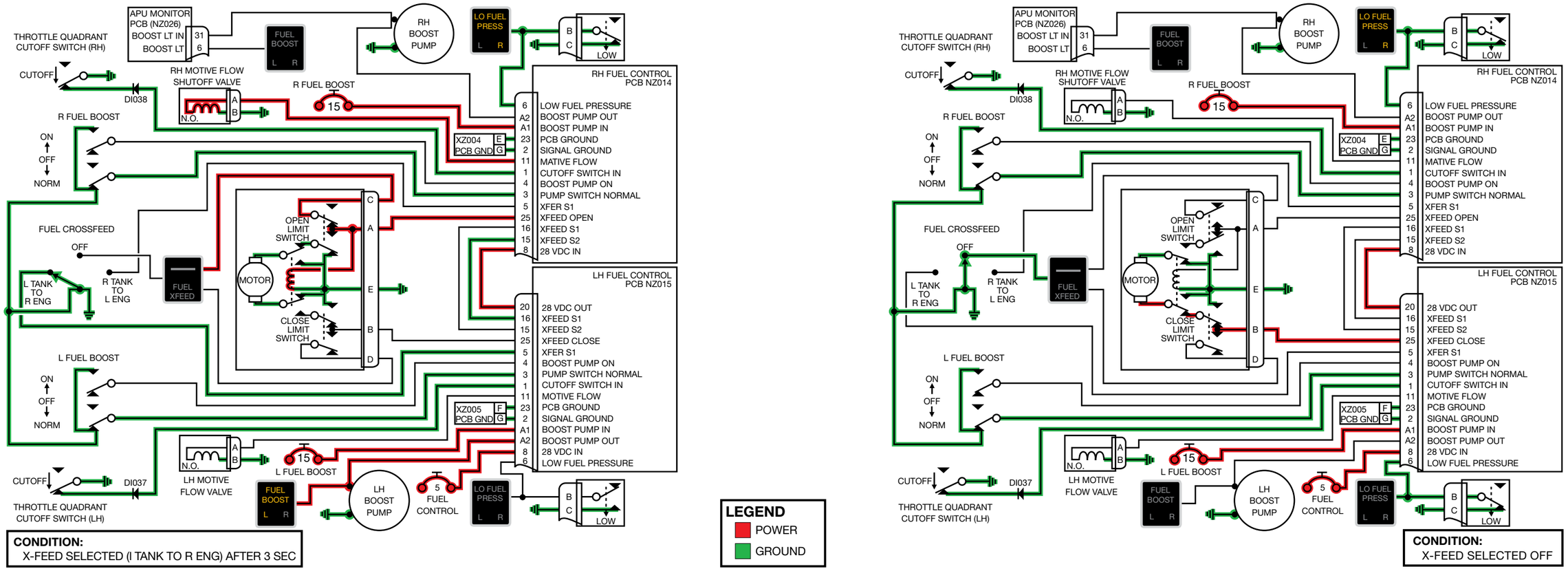

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Figure 28-3. Fuel Control System (Sheet 3 of 3)

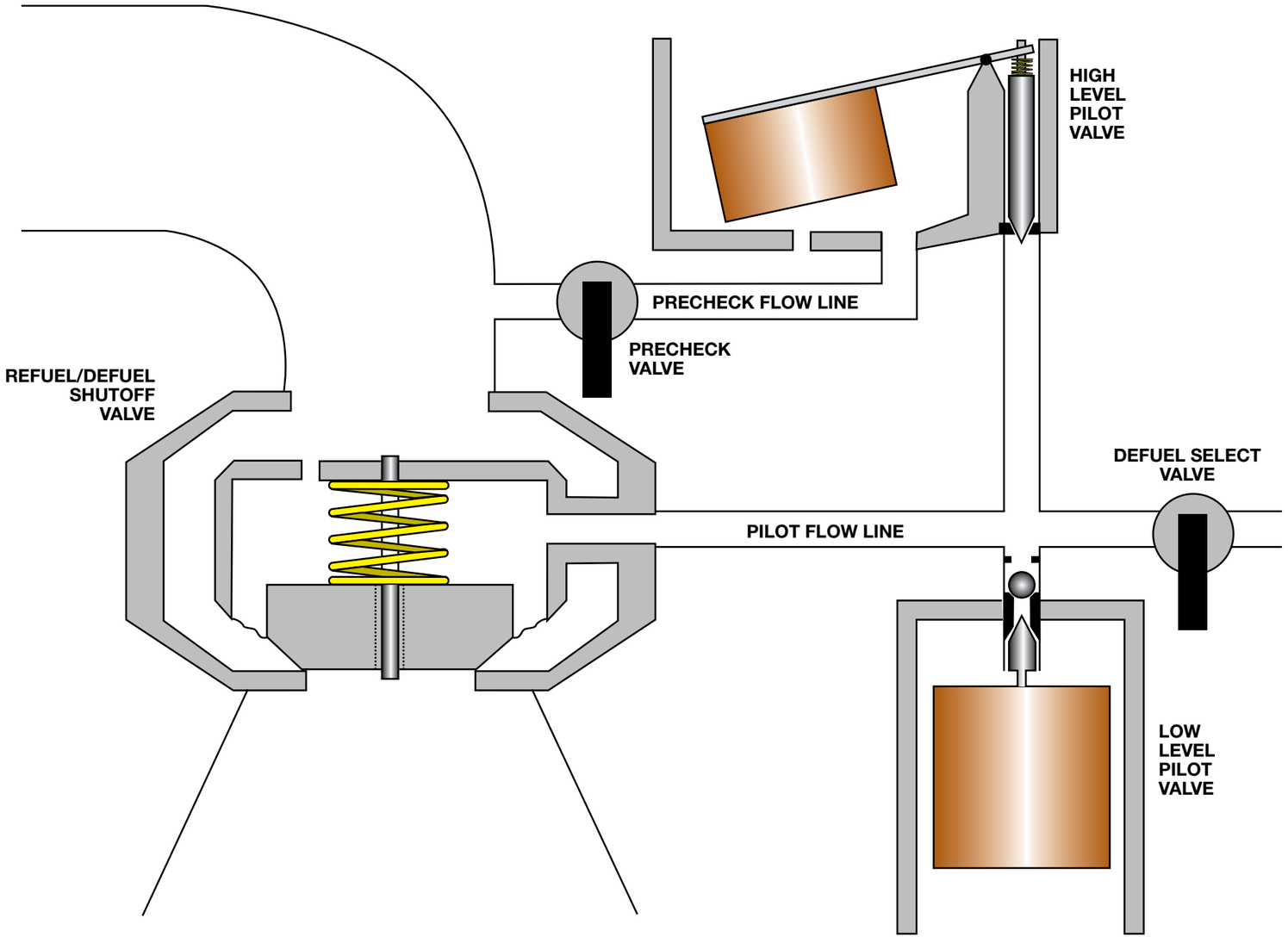

Figure 28-4. Single Point Refuel/Defuel System Overview

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CHAPTER 29
HYDRAULIC POWER

INTRODUCTION

This chapter presents the hydraulic system for the 560XL/XLS/XLS+ Citation aircraft with special emphasis given to components and their operation. General maintenance considerations arc included, with an introduction to functional and operational checks. References for this chapter and further specific information can be found in Chapters 5—"Time Limits/Maintenance Checks," Chapter 12—"Servicing," and Chapter 29— "Hydraulic Power," of the *Aircraft Maintenance Manual (AMM)*.

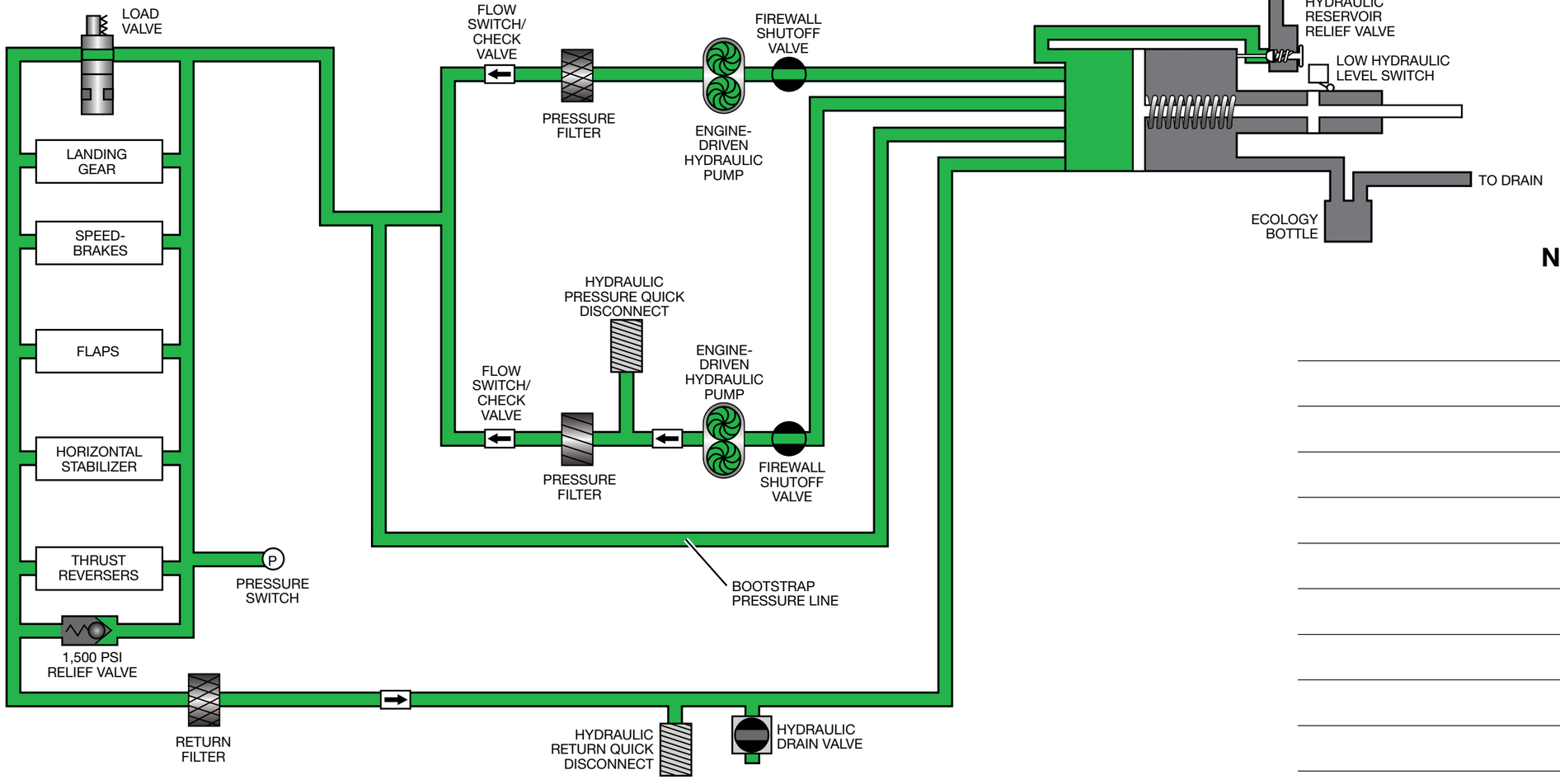
GENERAL

The hydraulic power system operates the landing gear, speedbrakes, and thrust reversers, in addition to the flaps and horizontal stabilizer actuator.

The system includes:

- Hydraulic reservoir
- Firewall shutoff valves
- Hydraulic pumps
- Panel and filter components

The hydraulic system is classified as "open-center" because fluid continually circulates between the hydraulic pumps and the reservoir at approximately 60 psi, when there is no demand on the system. When a demand is made for system pressure by initiating operation of a subsystem, a bypass valve closes causing the pressure to increase. Pressure is determined by the system relief valve and does not exceed 1,500 psi. The system remains pressurized until the subsystem being actuated completes its cycle. It then depressurizes as the bypass valve opens. A separate independent system is employed for the main wheel antiskid/power brake system.



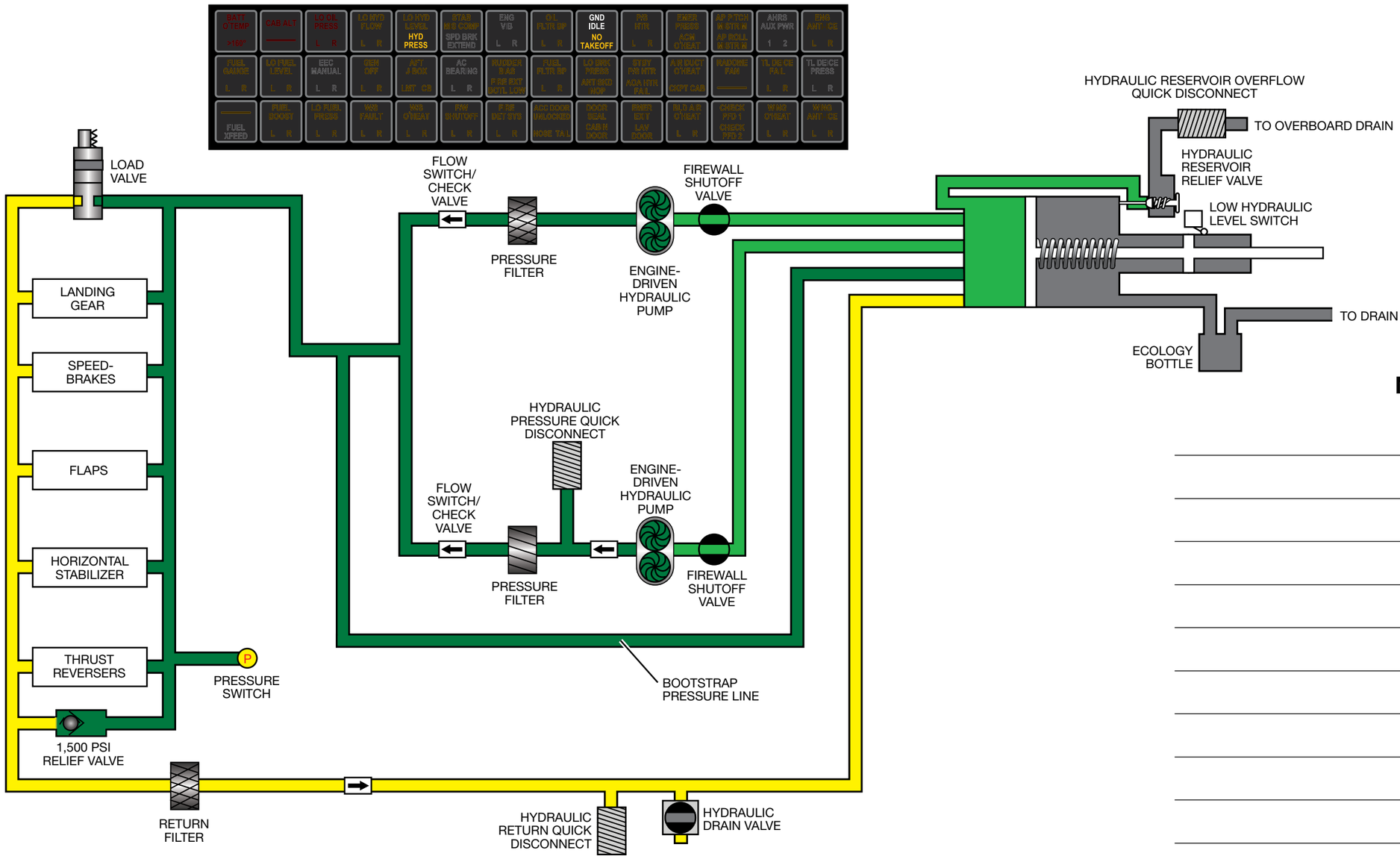
LEGEND

- LOW HYDRAULIC PRESSURE (60 PSI)
- HIGH HYDRAULIC SUPPLY PRESSURE (UP TO 1500 PSI)
- RETURN PRESSURE

CONDITION:
HYDRAULICS WITH ENGINES RUNNING

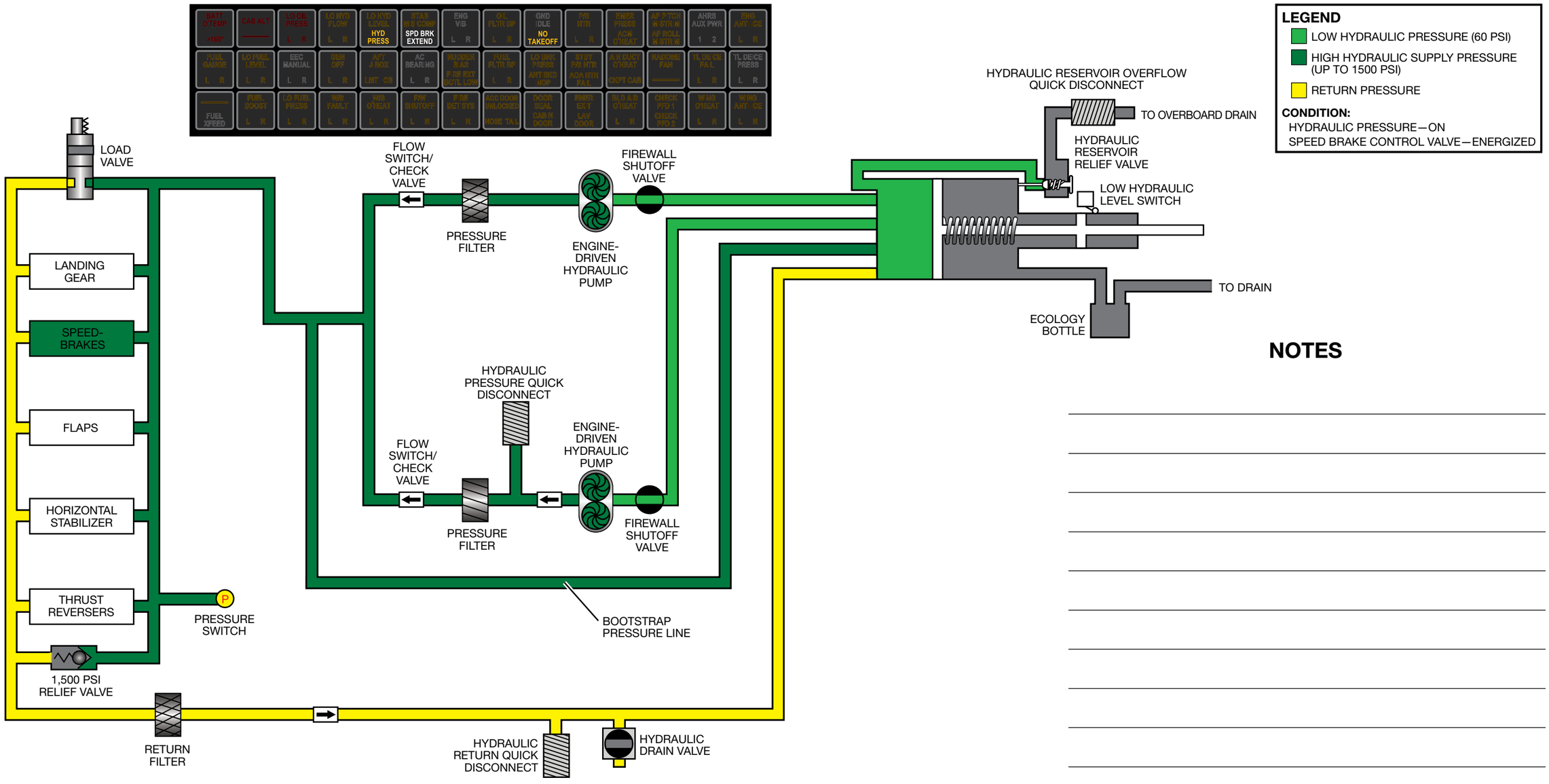
NOTES

Figure 29-1. Hydraulics—Engines Running



NOTES

Figure 29-2. Hydraulics—ON



NOTES

Figure 29-3. Hydraulics ON—Speed Brake Control Valve Energized

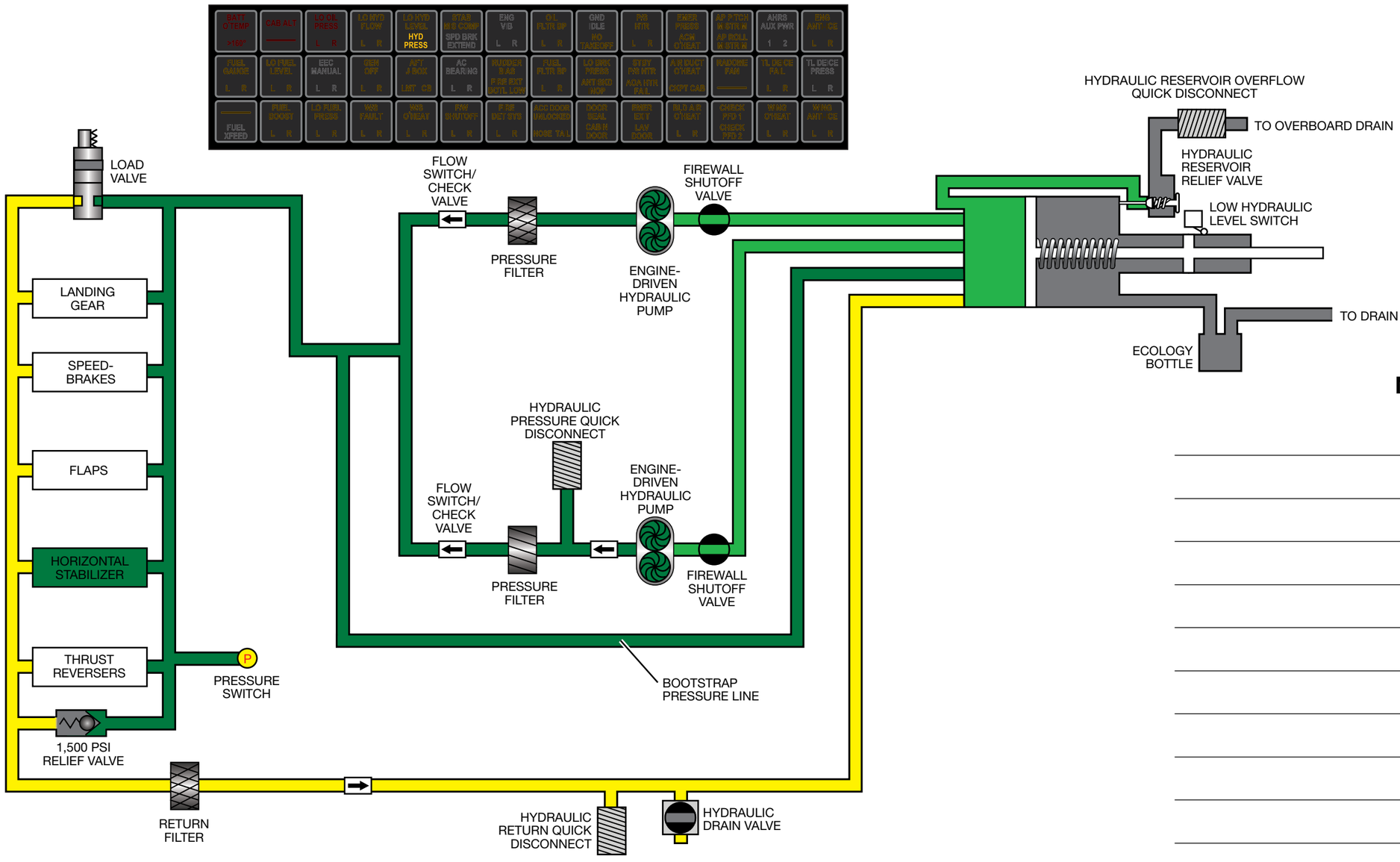


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Figure 29-4. Hydraulic Pressure ON—Horizontal Stabilizer Control Valve Energized

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NOTES

CHAPTER 30
ICE AND RAIN PROTECTION

INTRODUCTION

This chapter presents the ice and rain protection systems found in the Citation 560XL/XLS/XLS+ aircraft, and has been divided into seven sections. These sections are engine anti-ice, wing anti-ice, tail deice, windshield rain removal, windshield anti-ice, pitot/static anti-ice, and the heated drains. General maintenance considerations are included in each section along with a description of components and their operation. References for this chapter and further specific information can be found in Chapters 5—"Time Limits/Maintenance Checks," Chapter 12—"Servicing," Chapter 30—"Ice and Rain Protection," and Chapter 36—"Pneumatics," of the *Aircraft Maintenance Manual (AMM)*.

GENERAL

This chapter describes the systems and components which prevent or dislodge ice formation on various exterior areas of the aircraft. Preventing ice formation is identified herein as anti-ice and dislodging ice formation is identified as deice.

Areas protected from the formation of ice by anti-ice systems are:

- Inboard/outboard wing leading edge
- Engine air intake nacelles
- Pitot/static ports
- AOA vane
- Overboard water drain lines

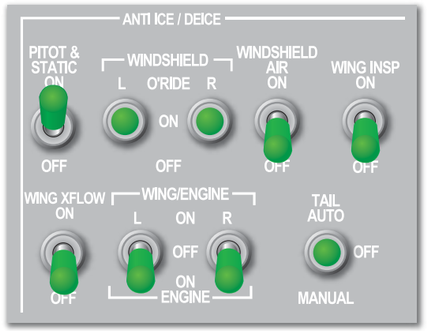
These areas have anti-ice systems which either heat the area with hot engine bleed air or electrical heating elements.

The horizontal stabilizer is protected by pneumatic boots which periodically inflate to dislodge or break up accumulated ice.

The windshield anti-ice system includes electrically heated glass windshields and forward side windows, combined with a forced air windshield moisture/rain removal system.

The pitot static anti-ice systems are comprised of electrically heated pitot tubes and electrically heated static ports.

Ice is detected by visual verification of ice being present. The wing inspection lights and the ice detection lights facilitate in verifying ice is present.



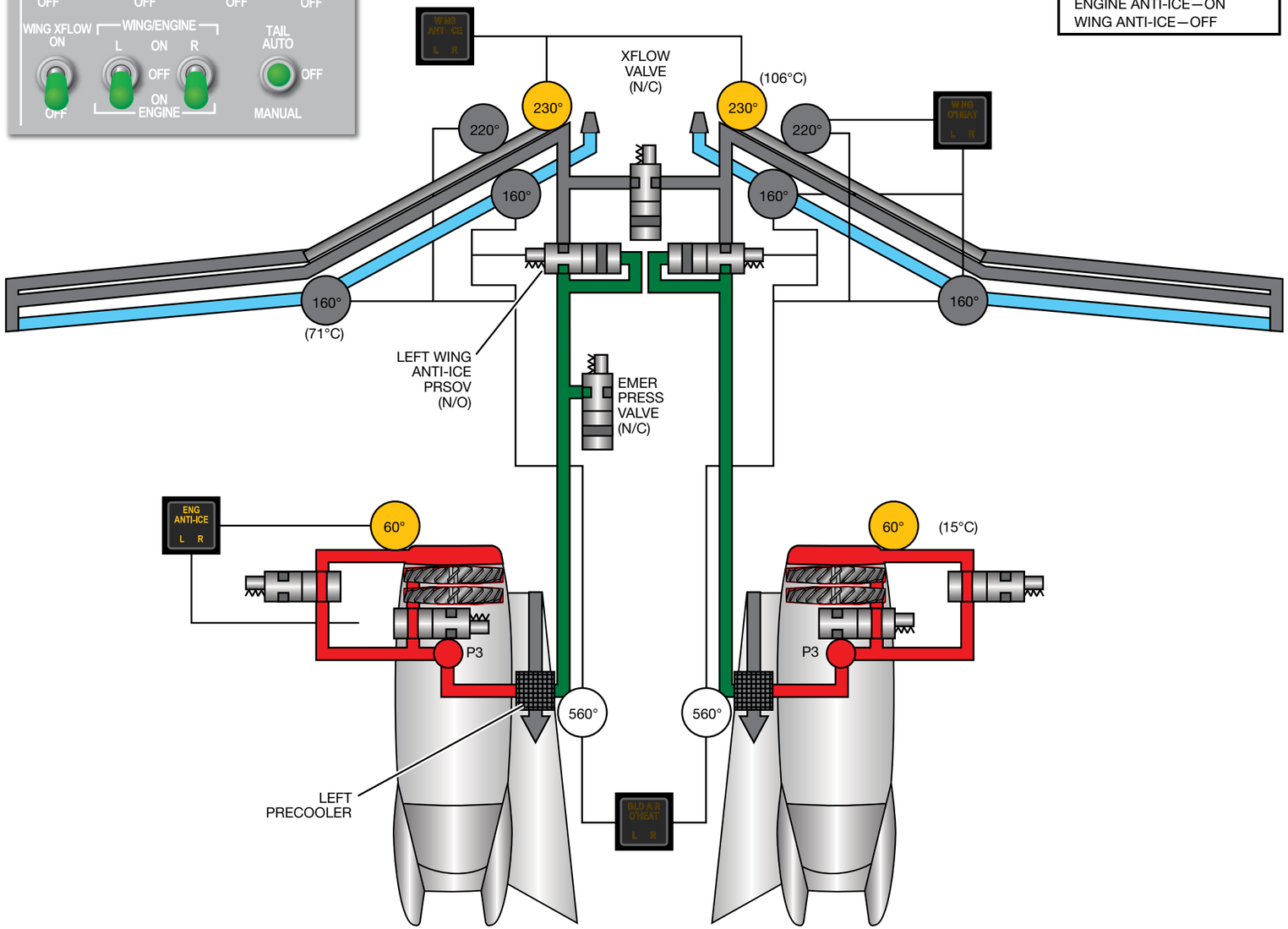
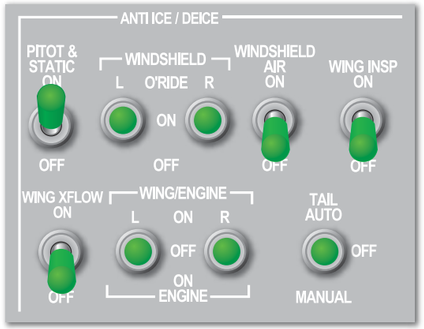


Figure 30-1. Engine Anti-Ice—ON

NOTES



LEGEND

- PRECOOLED SERVICE AIR
- VACUUM PRESSURE
- DE-ICE BOOT PRESSURE

CONDITION:
TAIL—DEFLATED

NOTE:
XL USES A SINGLE LOGIC BOARD

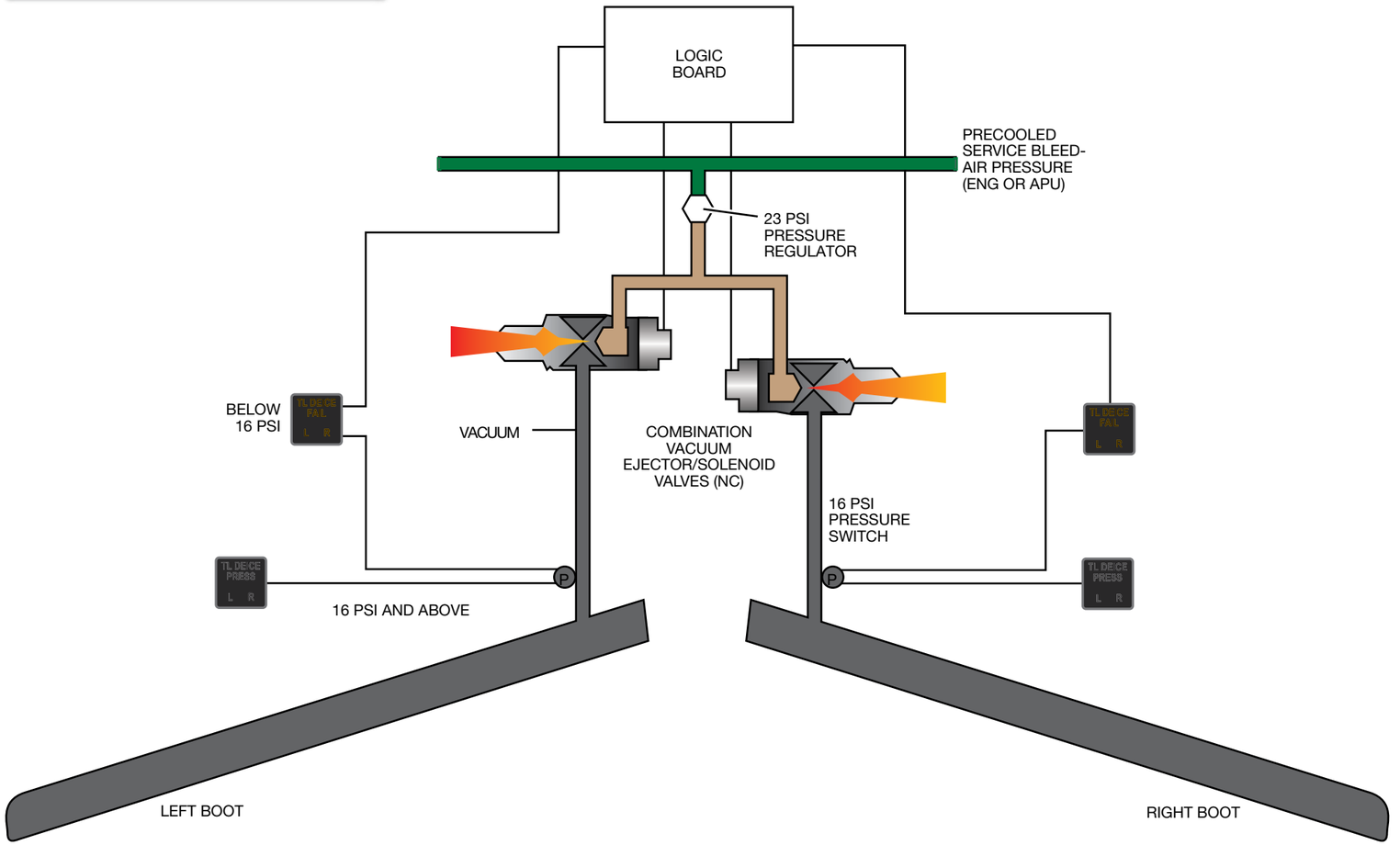


Figure 30-2. Tail De-Ice—Deflated

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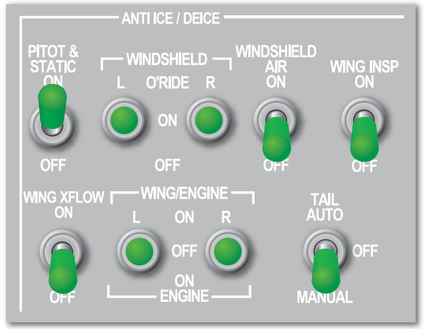
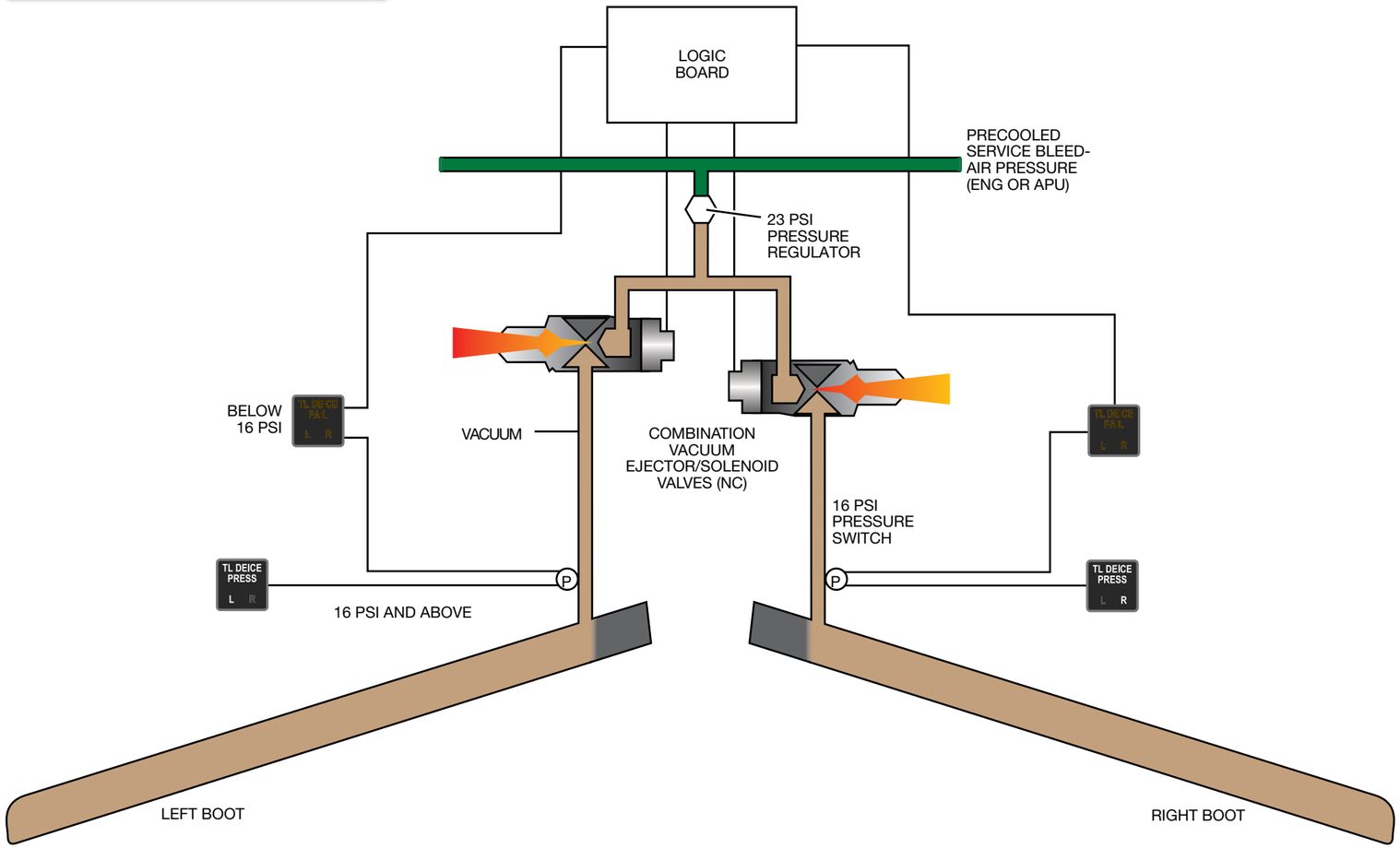


NOTE:
XL USES A SINGLE LOGIC BOARD

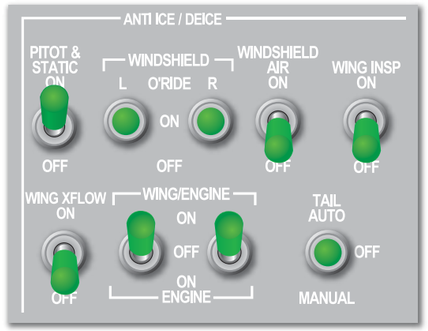


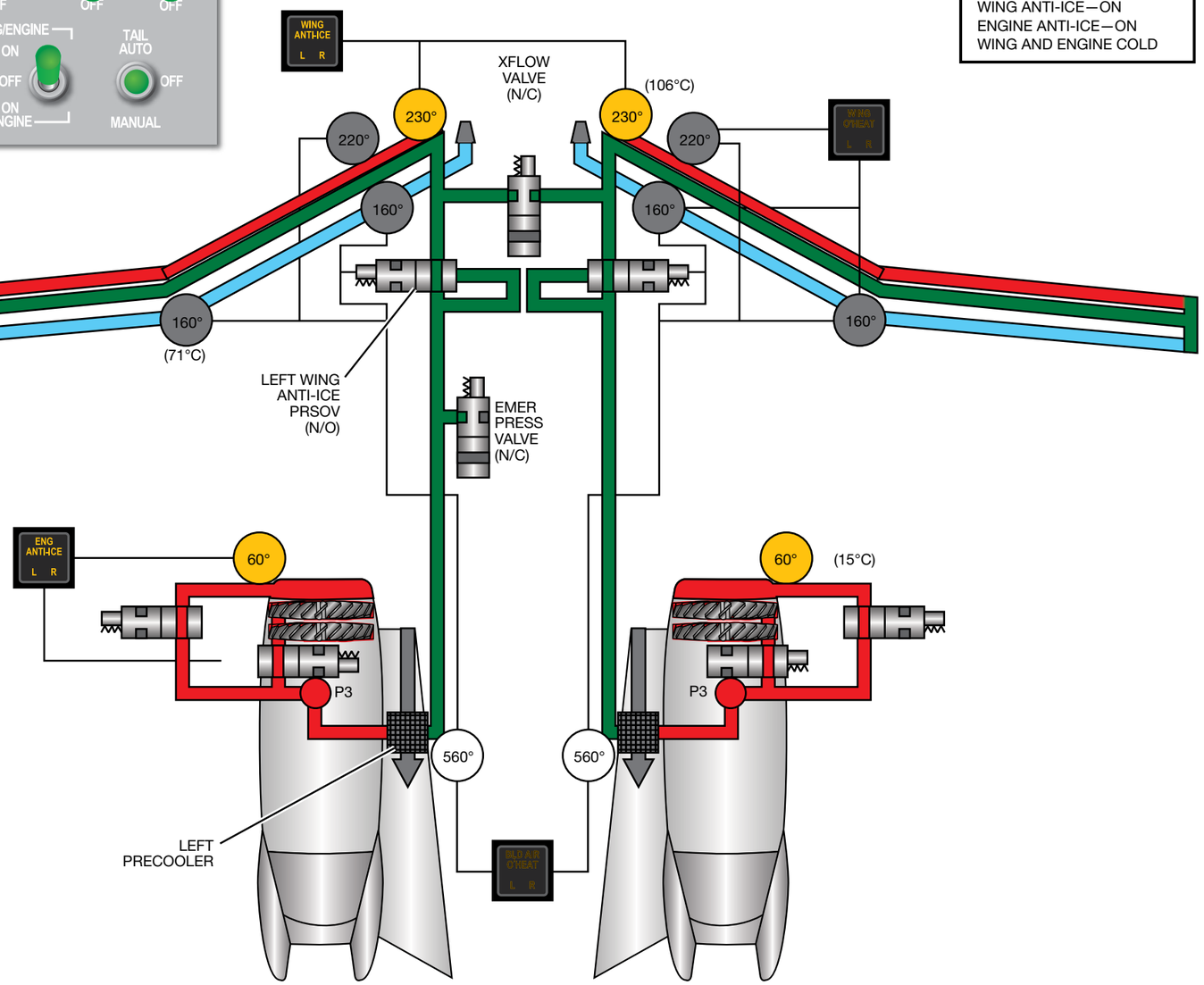
LEGEND
- PRECOOLED SERVICE AIR
- VACUUM PRESSURE
- DE-ICE BOOT PRESSURE

CONDITION:
TAIL—INFLATED (MANUAL)

Figure 30-3. Tail De-Ice—Inflated (Manual)

NOTES





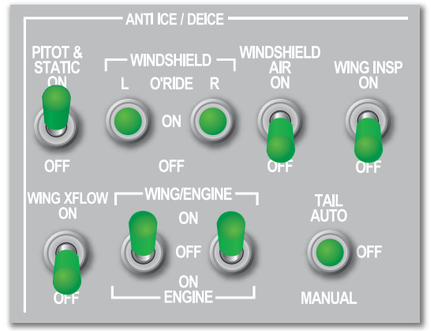
LEGEND

- HP BLEED AIR
- WARM (PRECOOLED) AIR
- RAM AIR

CONDITION:
WING ANTI-ICE—ON
ENGINE ANTI-ICE—ON
WING AND ENGINE COLD

Figure 30-4. Wing/Engine Anti-Ice (Sheet 1 of 2)

NOTES



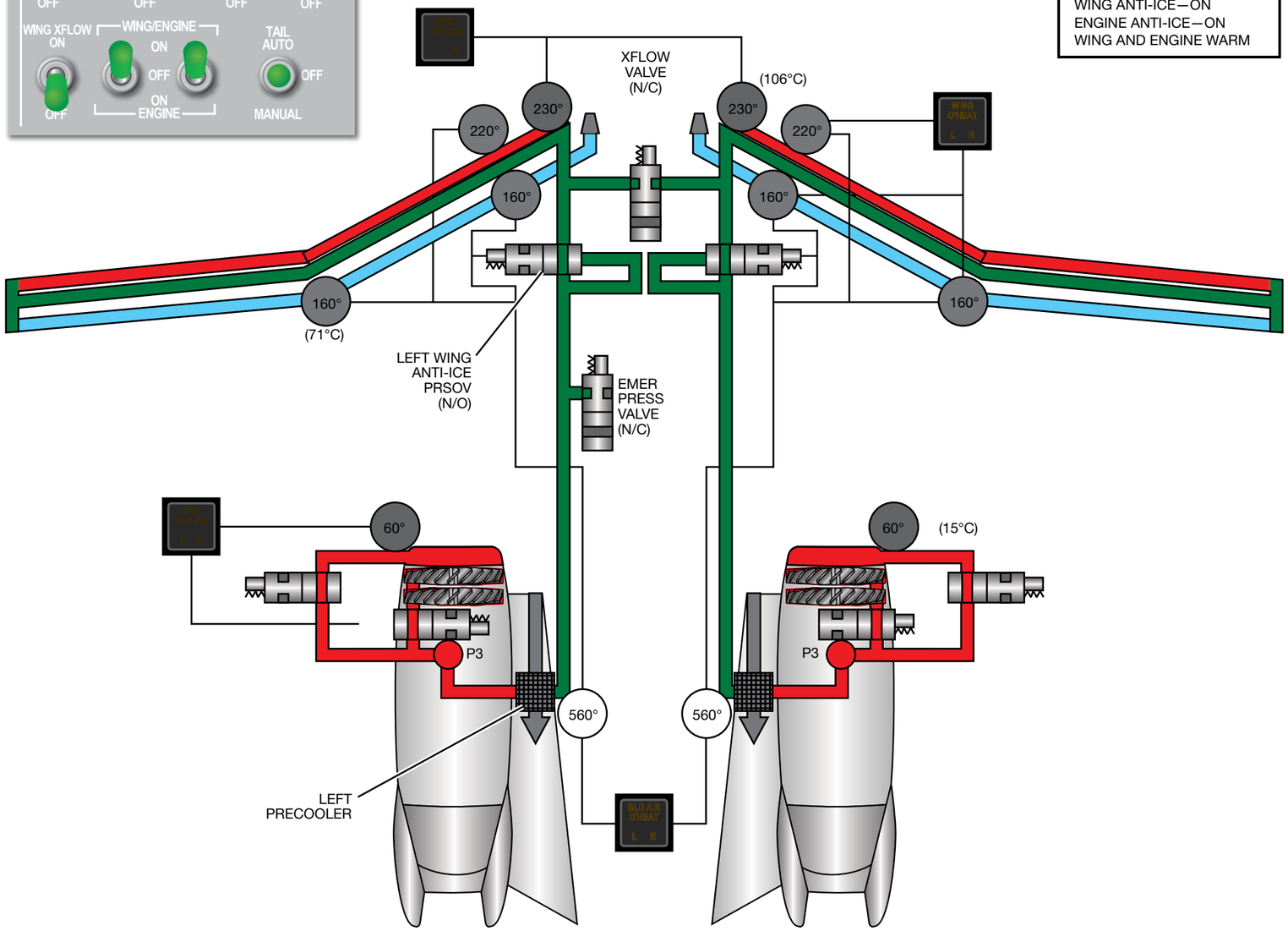
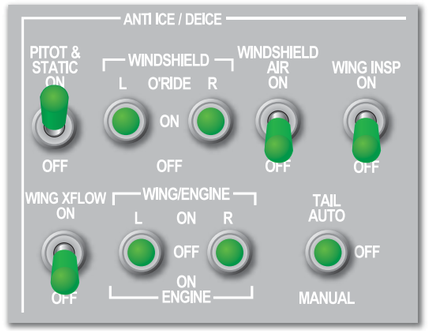


Figure 30-4. Wing/Engine Anti-Ice (Sheet 2 of 2)

NOTES

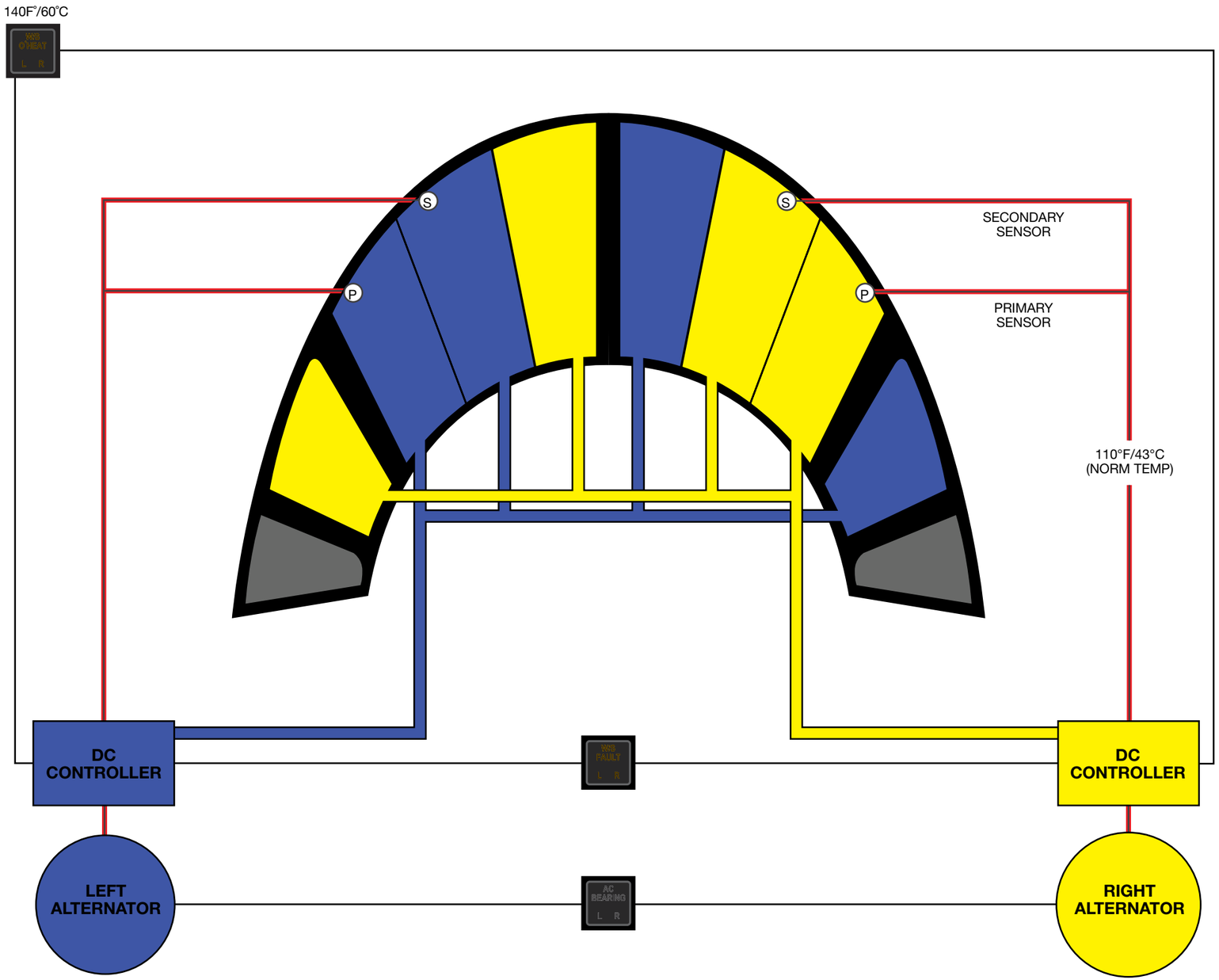


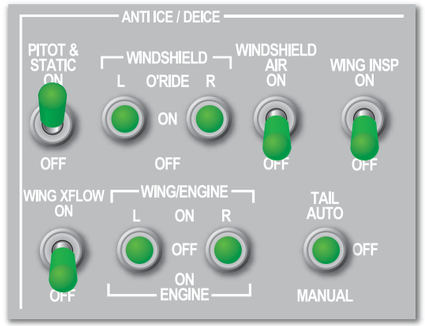
LEGEND
- HP BLEED AIR
- WARM (PRECOOLED) AIR
- RAM AIR

CONDITION:
WING ANTI-ICE—OFF
ENGINE ANTI-ICE—OFF

Figure 30-5. Wing/Engine Anti-Ice—OFF

NOTES





LEGEND

- LEFT ALTERNATOR POWER
- RIGHT ALTERNATOR POWER

NOTES

Figure 30-6. Windshield Anti-Ice Overview

CHAPTER 31
INDICATING AND RECORDING SYSTEMS

INTRODUCTION

This chapter describes and pictorially presents instruments, control panels, and components not related to a specific system. Information is also provided on components that record, store, compute data, and give visual or aural warnings from unrelated systems.

GENERAL

This section covers the standard configurations of the instrument panel. The four individual panels described include:

- Left panel
- Center panel
- Right panel
- Tilt panel

Instruments on the panels include:

- Rotary TEST knob
- Digital clock
- Flight hour meter
- Flight data recorders
- Optics switches
- MASTER CAUTION and MASTER WARNING lights

Description

The instrument panel mounts all flight, engine, and miscellaneous instruments. There are also control panels and switches on the instrument panel.

Most of the instruments are on the front side of the instrument panel and do not require removal of the individual panel for instrument maintenance.

The control panels are illuminated by electroluminescent panels. For maintenance practices of these panels, refer to Chapter 33—"Flight Compartment Primary Lights—Maintenance Practices" in the *Aircraft Maintenance Manual (AMM)*.

For CB panel maintenance, refer to Chapter 24—"Circuit Breaker Panel—Maintenance Practices" in the *AMM*.

XL/XLS

NOTES

Figure 31-1. Annunciator Panel

Table 31-1. ANNUNCIATOR PANEL LIGHTS

ANNUNCIATOR	DESCRIPTION
BATT O'TEMP >160	The BATT O'TEMP (battery overtemperature) light illuminates if the temperature of the battery exceeds 145°F. If the temperature increases above 160°F the >160°F portion of the light will also illuminate. This system operates from a different sensor than the battery temp gauge.
CAB ALT	The CAB ALT (cabin altitude) light illuminates to warn of cabin altitude in excess of 10,000 ft. If the pressure controller detects operation out of a high altitude airport, the light flashes at14,500 ft. cabin altitude.
LO OIL PRESS L R	The LO OIL PRESS light illuminates to indicate oil pressure when pressure in the specified engine is below 20 psid.
LO HYD FLOW L R	The LO HYD FLOW light illuminates to indicate that hydraulic fluid flow rate is below normal. Light will flash after 5 seconds illumination. Could indicate pump failure.
LO HYD LEVEL HYD PRESS	The LO HYD LEVEL light illuminates to indicate low fluid quantity in the hydraulic reservoir. (<75ci.) The HYD PRESS light illuminates to indicate that the hydraulic loading valve has closed, pressurizing the hydraulic system. (If on for 40 seconds in flight, it will flash).
STAB MIS COMP SPD BRK EXTEND	The STAB MISCOMP light illuminates to indicate the horizontal stab position does not agree with the flap handle position after 30 seconds of travel. (Unless the Landing Gear is also selected, then the delay is 40 seconds). The SPDBRK EXTEND light illuminates to indicate that both speedbrakes are fully extended.
ENG VIB L R	The ENG VIB light illuminates to indicate vibration has been detected in the designated engine.
OIL FLTR BP L R	The OIL FLTR BP light illuminates to indicate an impending bypass of the engine oil filter. Illuminates flashing, changes to steady after pressing the MASTER CAUTION.
GND IDLE NO TAKEOFF	The GND IDLE light illuminates when the aircraft is on the ground and the ECC's are in auto. The NO TAKEOFF light illuminates steady when the horizontal stab, wing flaps, speed- brakes or elevator trim are not in proper position for takeoff. Light flashes and MASTER CAUTION illuminates if throttles are advanced beyond 54° TLA.
P/S HTR L R	The P/S HTR light illuminates to indicate loss of DC power to the left or right pitot static heat system. Illuminates flashing, changes to steady after pressing the MASTER CAUTION (in flight).
EMER PRESS ACM O'HEAT	The EMER PRESS light illuminates to indicate that the Emergency Pressurization has been activated, manually or automatically. The ACM O'HEAT light illuminates to indicate that the ACM has overheated through a 420°F switchand shutdown.

ANNUNCIATOR	DESCRIPTION
AP PITCH MISTRIM	Annunciator flashes to indicate the autopilot elevator servo is not trimmed properly, (excessive sustained pressure). UP or DN light will illuminate on the A/P controller. Activates MASTER CAUTION lights. (XLS AP PITCH MISTRIM annunciations appear in the PFDs.)
AP ROLL MISTRIM	Annunciator flashes to indicate the autopilot aileron servo is not trimmed properly (excessive sustained pressure). Activates MASTER CAUTION lights. (XLS AP ROLL MISTRIM annunciations appear in the PFDs.)
AHRS AUX PWR 1 2	The AHRS AUX PWR light illuminates to indicate the AHS is currently powered by the auxiliary battery due to loss of normal DC power.
ENG ANTI-ICE L R	The ENG ANTI-ICE light illuminates to indicate the engine nacelle lip temperature is too low (60°F) or a fault with the stator valve has been detected.
FUEL GAUGE L R	The FUEL GAUGE light illuminates to indicate a fault detected in the fuel gauging system. Check BITE lights prior to turning off the battery switch during shutdown.
LO FUEL LEVEL L R	The LO FUEL LEVEL light illuminates to indicate the fuel quantity remaining in the respective wing has droped to less than 360 +/– 20 lbs for 30 seconds.
EEC MANUAL L R	The EEC MANUAL light illuminates to indicate that an engine electronic computer is offline and the engine is operating in manual mode.
GEN OFF L R	The GEN OFF light illuminates to indicate the respective generator power relay is open and the generator is offline. Both lights on will trigger the MASTER WARNING flasher.
AFT J-BOX LMT CB	The AFT J-BOX LMT light illuminates to indicate an open 225 amp current limiter in the aft J-Box. The AFT J-BOX CB light illuminates to indicate a popped start control CB in the aft J-Box.
AC BEARING L R	The AC BEARING light illuminates to indicate a primary bearing failure in the AC alternator.
RUDDER BIAS FIRE EXT BOTL LOW	The RUDDER BIAS light illuminates to indicate the rudder bias control valve and the commanded position do not agree after a one second delay. The FIRE EXT BTL LOW light illuminates to indicate low pressure of 500 psi or less in one or both fire extinguisher bottles.

NOTES

Table 31-1. ANNUNCIATOR PANEL LIGHTS (CONT)

ANNUNCIATOR	DESCRIPTION
FUEL FLTR BP L R	The FUEL FLTR BP light illuminates to indicate an impending bypass of the respective fuel filter.
LO BRK PRESS ANTISKD INOP	The LO BRK PRESS light illuminates to indicate loss of power brake pressure below 750 psi. The ANTI SKD INOP light illuminates to indicate that the anti-skid system is inoperative in test mode, or the switch is off. It will also illuminate along with the LO BRK PRESS annunciator.
STBY P/S HTR AOA HTR FAIL	The STBY P/S HTR light illuminates to indicate loss of DC power to the standby pitot static heat system. The AOA HTR FAIL light illuminates to indicate loss of DC power to the angle of attack probe heater.
AIR DUCT O'HEAT CKPT CAB	The AIR DUCT O'HEAT light illuminates to indicate the supply air duct to the cabin or cockpit has exceeded 300°F.
RADOME FAN FDR FAIL	The RADOME FAN light illuminates to warn of failure of the radome cooling fan. FDR FAIL Advisory—Indicates the optional flight data recorder is inoperative (not used on XLS).
TL DEICE FAIL L R	The TL DEICE FAIL light illuminates to indicate the respective horizontal stab deice boot is not inflating properly less than 16 psi.
TL DEICE PRESS L R	The TL DEICE PRESS light illuminates to indicate the respective horizontal stab deice boot is inflating and pressure is greater than 16 psi.
FUEL XFEED	The FUEL XFEED light illuminates to indicate the fuel crossfeed valve has opened. The light will flash if crossfeed switch is in off and the crossfeed valve is still open for greater than 10 seconds. Does not illuminate if crossfeed valve does not fully open when crossfeed is selected.
FUEL BOOST L R	The FUEL BOOST light illuminates to indicate the activation of the electric boost pump. (automatic or manual activation)
LO FUEL PRESS L R	The LO FUEL PRESS light illuminates to indicate the fuel pressure in the engine supply line is low below 5.3 psi.
W/S FAULT L R	The W/S FAULT light illuminates to indicate the detection of a fault in the windshield anti-ice system.

ANNUNCIATOR	DESCRIPTION
W/S O'HEAT L R	The W/S O'HEAT light illuminates to indicate an overheat condition (>140°F) of the windshield.
F/W SHUTOFF L R	The F/W SHUTOFF light illuminates to indicate the respective fuel & hydraulic firewall shutoff valves are both closed.
FIRE DET SYS L R	The FIRE DET SYS light illuminates to indicate a failure in the respective fire detection system.
ACC DOOR UNLOCKED NOSE TAIL	The ACC DOOR UNLOCKED NOSE light illuminates to indicate that at least one of four nose avionics door latches is not secure. The ACC DOOR UNLOCKED TAIL light illuminates to indicate either the forward tail cone access door, the baggage compartment door, or the batery door is not secure.
DOOR SEAL CABIN DOOR	The DOOR SEAL light illuminates to warn of pressure less than 5.5 psid in the cabin door seal. The CABIN DOOR light illuminates to indicate that the cabin door is not locked properly and/or the vent door did not close.
EMER EXIT LAV DOOR	The EMER EXIT light illuminates to warn the emergency exit door is open. The LAV DOOR light illuminates to indicate that the interior lavatory door is not latched open with flaps down.
BLD AIR O'HEAT L R	The BLD AIR O'HEAT light illuminates to indicate the respective bleed air system has exceeded 560°F.
CHECK PFD 1 CHECK PFD 2	The CHECK PFD 1 light illuminates to indicate the pilot flight display system is not operating properly. The CHECK PFD 2 light illuminates to indicate the copilot flight display system is not operating properly.
WING O'HEAT L R	The WING O'HEAT light illuminates to indicate the air temperature between the wing leading edge heatshield and the wing forward spar has exceeded 160°F.
WING ANTI-ICE L R	The WING ANTI-ICE light illuminates to indicate the wing anti-ice bleed air temperature is too low below 220°F.

NOTES

Table 31-2. ANNUNCIATOR LIGHTS

ANNUNCIATOR	DESCRIPTION
AP OFF YD OFF	(XL only) Illumination occurs when the autopilot or yaw damper is manually disconnected by the crew or automatically disconnected due to malfunction. Thisannunciator is next to the L and R MASTER WARNING/MASTER CAUTIONswitchlights. XLS—AP and YD OFF annunciations appear in the L and R PFDs.
APU GEN OFF	(XLS only) Steady illumination indicates the APU is operating and its generator is off line.
BIAS HEATER FAIL	(XL and XLS) Steady illumination indicates the rudder bias heating blanket is heating. Flashing light indicates blanket sensor failure. Pressing the light causes steady illumination. This annunciator does not activate the MASTER CAUTION lights.
FD/AP PFD 1 FD/AP PFD 2	(XL and XLS) Switchlight indicates the No.1 or 2 flight director is controlling the autopilot. Press the switchlight to change flight directors. Switching flight directors with the autopilot engaged causes the autopilot to revert to basic pitch and heading hold modes. The flight director modes must be reselected.
TERR NORM	(XL and XLS) Switchlight indicates the enhanced GPWS or TAWS warnings occur normally and the terrain map is displayed on the MFD.
TERR INHIB	(XL and XLS) When selected, inhibits the enhanced TAWS (EGPWS) warnings and the terrain map. Modes 1–7 remain active.
TAWS FLAP NORM	(XLS) Switchlight indicates that the TOO LOW FLAPS audio warning activates when the aircraft is below approximately 245 feet AGL, less than 160 KIAS, and landing flaps are not selected.
TAWS FLAP OVRD	(XL and XLS) When pressed, the switch disarms or cancels the audio warning for landing with flaps less than 35°. The XL switchlight is labeled GPWS FLAP NORM and GPWS O'RIDE. The functions are the same.
TAWS G/S	(XLS) Switchlight indicates normal GLIDESLOPE audio warnings are active for deviations below the glideslope. The GLIDESLOPE warning sounds if the aircraft is below 1000 feet AGL, descending greater than 500 fpm, and below 1.3 dots.
CANCELED	(XLS) When pressed, disables the GLIDESLOPE audio warnings. The XL switchlight is labeled GPWS G/S and O'RIDE. The functions are the same.
TAWS TEST	(XLS) Pressing the switchlight initiates the TAWS system test. This test function is inhibited inflight. The XL switchlight is labeled GPWS TEST. The functions are the same.

ANNUNCIATOR	DESCRIPTION
AUDIO SPK/HPH	(XL and XLS) Indicates normal operating mode (default position). Audio communications are active through the cockpit speakers and crew headsets.
AUDIO HPH ONLY	Pressing the switchlight mutes all avionics audio through the cockpit speakers including TCAS and TAWS (EGPWS). The gear horn and NO TAKEOFF warnings are not inhibited.
PHONE CALL	(XL and XLS) (Optional) Steady illumination for an incoming HF radio call.
CABIN TEMP CTL RMT NRM	(XL and XLS) Indicates that cabin temerature is controlled from the cockpit temerature controller. When pressed, transfers the cabin temperature control to the cabin.
ARM	Illumination indicates pressure is available to the thrust reverser (pressure is sensed passed the isolation valve). Illumination is normal on ground during TR operation, but abnormal inflight. Illumination inflight causes the red MASTER WARNING lights to flash.
UNLOCK	Illumination indicates the thrust reverser is unlocked. Illumination is normal on ground during TR operation, but abnormal inflight. Illumination inflight causes the red MASTER WARNING lights to flash.
DEPLOY	Illumination of the white light indicates the thrust reverser is deployed. Illumination is normal on ground during TR operation, but abnormal inflight.
LH ENGINE FIRE RH ENGINE FIRE	Illumination indicates high temperature is detected in the engine nacelle. 1. Closes the fuel F/W shutoff valve. 2. Closes the hydraulic F/W shutoff valve. 3. Deactives the engine generator (opens the field relay). 4. Disarms the thrust reverser. 5. Arms the engine fire bottles.
BOTTLE 1 ARMED PUSH	Illumination of the white light indicates the respective engine fire bottle is armed. When pressed, the bottle discharges. The red ENGINE FIRE switchlight must be pressed to illuminate the BOTTLE ARMED lights.
APU FIRE	Illumination indicates high temperature in the APU compartment. The APU automatically shuts down and the APU FAIL light illuminates. Pressing the red switchlight discharges the APU fire bottle. If the switchlight is not pressed, the fire bottle automatically discharges in 8 seconds.
APU RELAY ENGAGED	Illumination indicates the APU relay is engaged during the APU start. Illumination also occurs when the APU generator participates in an engine start.
APU FAIL	Illumination indicates the APU will not start due to a system malfunction (i.e., the APU fire bottle is low or the fire detection system is inoperative). If the APU is operating, the light indicates the APU is shutting down. Reasons for automatic shutdown include fire detected in the APU compartment or the fire bottle is low. Limitation: Starting the APU is prohibited whenever the APU FAIL light is illuminated.
READY TO LOAD	Illumination indicates the APU start is complete and at operating speed (95% rpm + 4 seconds). The APU generator and bleed air can be selected after illumination. The light remains illuminated during APU operation.
BLEED VAL OPEN	Illumination indicates APU bleed air valve (BAV) is other than closed.

NOTES

Table 31-3. RED EICAS MESSAGES

APU FIRE	
DESCRIPTION	This message indicates a fire is detected in the auxiliary power unit (APU).
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

BAGGAGE SMOKE DETECT	
DESCRIPTION	This message is displayed when smoke is detected in the baggage compartment.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

BATTERY OVERTEMP > 145º	
DESCRIPTION	This message is displayed when the battery temperature sensor measures above 145ºF.
INHIBITS	LOPI, TOPI
DEBOUNCE	8 Second

BATTERY OVERTEMP > 160º	
DESCRIPTION	This message is displayed when the battery temperature sensor measures above 160ºF.
INHIBITS	LOPI, TOPI
DEBOUNCE	8 Second

CABIN ALTITUDE	
DESCRIPTION	The cabin altitude is 14,500 feet during high altitude mode or 10,000 feet for normal operation.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

(*) = with exceptions

DC GENERATOR OFF L-R	
DESCRIPTION	This message is displayed when the respective generator contactor is open. This message is red if both contactors are open.
INHIBITS	LOPI, TOPI, *ESDI, SIPI
DEBOUNCE	*Standard

** The engine shutdown inhibit (ESDI) is not active in the air.*

EMERGENCY DECENT	
DESCRIPTION	The cabin altitude has exceeded 14,500 feet.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

ENGINE FAILED L-R	
DESCRIPTION	Either the left, right, or both engines have failed.
INHIBITS	
DEBOUNCE	Standard

ENGINE FIRE L-R	
DESCRIPTION	This message is displayed when the engine fire detection system has detected a fire.
INHIBITS	
DEBOUNCE	Standard, 1 Second

LAVATORY SMOKE DETECT	
DESCRIPTION	This message is displayed when smoke is detected in the lavatory.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

NO TAKEOFF	
DESCRIPTION	This message is displayed if the throttles are advanced beyond 43º TLA, airspeed less than 67 knots, and thrust reversers not deployed, the red NO TAKEOFF message will illuminate if one or more of the following conditions exist: • Flaps not within takeoff range (<7º or >15º) • Elevator out of trim for takeoff • Horizontal stabilizer is out of takeoff positions The red message also produces a voice aural "No Takeoff".
INHIBITS	LOPI, IN AIR
DEBOUNCE	Standard

OIL PRESSURE LOW L-R	
DESCRIPTION	This message is displayed when the oil prssure is low on either the left or right engine, or both engines. Due to transient allowances, the EICAS message and MASTER WARNING do not display until oil pressure is <20 PSI.
INHIBITS	LOPI, TOPI, ESDI, EFI, SIPI
DEBOUNCE	Standard

NOTES

Table 31-4. AMBER EICAS MESSAGES

ACM OVERTEMP	
DESCRIPTION	This message is displayed when the ACM has overheated.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

ADC SSEC MISCOMPARE	
DESCRIPTION	This message is displayed when the pilot and copilot ADCs are on different SSECs.
INHIBITS	TOPI
DEBOUNCE	10 Seconds

AFT BAGGAGE DOOR	
DESCRIPTION	This message is displayed when the baggage door is open.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

ANTISKID FAIL	
DESCRIPTION	This message is displayed when the antiskid system has failed or the **LOW BRAKE PRESSURE** message is displayed.
INHIBITS	POD, TOPI
DEBOUNCE	*20 Seconds

AOA HEAT FAIL	
DESCRIPTION	This message is displayed when the pitot/static heat switch is on and the AOA probe is not being heated. The advisory PITOT/STATIC COLD L-R-STBY message is used to alert the crew if the pitot/static switch is OFF.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

APU FAIL	
DESCRIPTION	This message is displayed when the APU has failed or the APU fire bottle is low.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

APU GENERATOR OFF	
DESCRIPTION	This message is displayed when the APU is on and the APU generator relay is open. The message is amber if the APU generator switch is selected on.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

APU ON	
DESCRIPTION	This message indicates the APU is on above 30,000 feet.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

BATTERY DOOR	
DESCRIPTION	This message is displayed when the battery door is open.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

BLEED AIR OVERTEMP L-R	
DESCRIPTION	This message is displayed when the supply bleed air from the engine is too hot.
INHIBITS	LOPI, TOPI
DEBOUNCE	20 seconds

CABIN AIR DUCT OVERTEMP	
DESCRIPTION	This message is displayed when the supply air in the cabin air duct is too hot.
INHIBITS	LOPI, TOPI
DEBOUNCE	20 seconds

CABIN DOOR	
DESCRIPTION	This message is displayed when the cabin door is open.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

CABIN DOOR SEAL	
DESCRIPTION	This message is displayed when the pressure in the cabin door seal is less than 5 PSI
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

COCKPIT AIR DUCT OVERTEMP	
DESCRIPTION	This message is displayed when the supply air in the cockpit air duct is too hot.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

(*) = with exceptions

NOTES

Table 31-4. AMBER EICAS MESSAGES (CONT)

DC GENERATOR OFF L-R	
DESCRIPTION	This message is displayed when the respective generator contactor is open. This message is amber if only one contactor is open.
INHIBITS	LOPI, TOPI, *ESDI, SIPI
DEBOUNCE	*1.0 Seconds

DCU CHANNEL A FAIL	
DESCRIPTION	This message indicates a loss of redundancy for processing of CAS or EIS parameters. The DCU disregards any information from the faulty daughtercards, so all information presented should be correct.
INHIBITS	LOPI, TOPI, POD
DEBOUNCE	1 Second

DCU CHANNEL B FAIL	
DESCRIPTION	This message indicates a loss of redundancy for processing of CAS or EIS parameters. The DCU disregards any information from the faulty daughtercards, so all information presented should be correct. Only DCU Channel B is powered in EMER. If a DCU Channel B fail is present prior to switching to EMER power, the overspeed aural alert, landing gear warning aural, and 2-position tail lockout at 215 kts will not be functional.
INHIBITS	LOPI, TOPI, POD
DEBOUNCE	1 Second

DCU FAN FAIL	
DESCRIPTION	This message is displayed when the DCU fan has failed. If failure occurs on the ground, the message will be amber and will remain amber should the aircraft dispatch with the fan failed.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

(*) = with exceptions

EFIS COMPARE INOP	
DESCRIPTION	This message is displayed when the EFIS MISCOMPARE monitor is not being performed because one of the display has lost the cross-side data used for performing the comparison.
INHIBITS	LOPI, TOPI
DEBOUNCE	5 Seconds

EFIS MISCOMPARE	
DESCRIPTION	This message is displayed when a monitor miscompare has occured in the EFIS.
INHIBITS	LOPI, TOPI
DEBOUNCE	5 Seconds

EMERGENCY EXIT	
DESCRIPTION	This message is displayed when the emergency exit is open.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

EMERGENCY PRESSURIZATION	
DESCRIPTION	This message is displayed when the emergency pressurization is active.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

ENGINE FIRE BOTTLE LOW 1-2	
DESCRIPTION	This message is displayed when an engine fire bottle is low, as measured by a pressure switch on the bottle.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

ENG FIRE DETECT FAIL L-R	
DESCRIPTION	This message is posted when one of the engine fire detectors has failed.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

ENGINE ANTI-ICE COLD L-R	
DESCRIPTION	The AMBER message is displayed, in the air or on the ground, when anti-ice is selected ON and the surface does not heat or if it heats and then cools down. It can also be displayed, in the air or on the ground if the stator anti-ice valves are not in the correct position for more than five seconds.
INHIBITS	LOPI, TOPI, ESDI, SIPI
DEBOUNCE	5 Seconds

ENGINE CONTROL FAULT L-R	
DESCRIPTION	This message is posted when a FADEC channel has failed.
INHIBITS	LOPI, TOPI, POD, EFI, *SIPI
DEBOUNCE	Standard

* The message is also inhibited by an engine and/or APU start on the ground.

FIREWALL SHUTOFF L-R	
DESCRIPTION	This message is displayed when the fuel and hydraulic valves of the same side are not in the commanded position.
INHIBITS	LOPI, TOPI
DEBOUNCE	2 Seconds

FUEL BOOST PUMP ON L-R	
DESCRIPTION	This message is displayed when the fuel boost pump is on, fuel pressure is low, and the throttle is *not* in CUTOFF.
INHIBITS	LOPI, TOPI, SIPI
DEBOUNCE	Standard

FUEL CROSS FEED	
DESCRIPTION	This message is displayed when the fuel crossfeed valve is not in aggreement with the selected CROSSFEED switch position.
INHIBITS	LOPI, TOPI
DEBOUNCE	*10 Seconds

NOTES

Table 31-4. AMBER EICAS MESSAGES (CONT)

FUEL FILTER BYPASS L-R	
DESCRIPTION	This message is displayed when the fuel filter impending bypass is true. (The fuel filter on one or both engines has become clogged and has been bypassed)
INHIBITS	LOPI, TOPI, *ESDI, SIPI
DEBOUNCE	Standard

FUEL GAUGE L-R	
DESCRIPTION	This message is displayed when there is a fault in the fuel quantity indicating system, as determined by the fuel quantity signal conditioner.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

FUEL LEVEL LOW L-R	
DESCRIPTION	This message is displayed when the fuel level in the fuel tank is low as determined by a float switch.
INHIBITS	LOPI, TOPI
DEBOUNCE	*34 Seconds

FUEL PRESSURE LOW L-R	
DESCRIPTION	This message is displayed when the fuel pressure is low, and the respective engine is running.
INHIBITS	LOPI, TOPI, ESDI, SIPI
DEBOUNCE	Standard

GROUND IDLE L-R	
DESCRIPTION	This message is displayed if a FADEC failure should result in ground idle mode in air.
INHIBITS	TOPI
DEBOUNCE	1 Second

HYDRAULIC FLOW LOW L-R	
DESCRIPTION	This message is displayed when the hydraulic flow is low after engine start.
INHIBITS	LOPI, TOPI, *ESDI, SIPI
DEBOUNCE	*5 Seconds

* The engine shutdown inhibit (ESDI) is not active in the air.

HYDRAULIC PRESSURE	
DESCRIPTION	This message is displayed when hydraulic system has remained pressurized for more than 40 seconds in the air.
INHIBITS	*LOPI, *TOPI
DEBOUNCE	*40 Seconds

HYDRAULIC FLUID LEVEL LOW	
DESCRIPTION	This message is displayed when the hydraulic fluid level in the reservoir is low.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

IAPS FAULT	
DESCRIPTION	This message is displayed when the IEC monitor has detected a fault in the environmental control of the IAPS.
INHIBITS	LOPI, TOPI
DEBOUNCE	1 Second

IAPS OVERTEMP	
DESCRIPTION	This message is displayed when the power supply has overheated and is entering the shutdown cycle.
INHIBITS	LOPI, TOPI
DEBOUNCE	15 seconds

J-BOX CURRENT LIMITER	
DESCRIPTION	This message is displayed when one of the two 225-Amp limiters in the power J-Box have opened.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

J-BOX START CB	
DESCRIPTION	This message is displayed when one of four breakers for the start cards has tripped.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

LAVATORY DOOR	
DESCRIPTION	This message is displayed when the lavatory door is closed and the aircraft is on the ground, or flaps are out of 0° position.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

LOW BRAKE PRESSURE	
DESCRIPTION	This message is displayed when the brake pressure is low and the right main gear is down and locked.
INHIBITS	POD
DEBOUNCE	*20 Seconds

NOSE DOOR	
DESCRIPTION	This message is displayed when either nose door is open.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

OIL FILTER BYPASS L-R	
DESCRIPTION	This message is displayed when one, or both of the oil filters are clogged and have become bypassed.
INHIBITS	LOPI, TOPI, ESDI
DEBOUNCE	Standard

(*) = with exceptions

NOTES

Table 31-4. AMBER EICAS MESSAGES (CONT)

PITCH TRIM FAIL	
DESCRIPTION	This message is displayed when the autopilot control of elevator trim is inoperative.
INHIBITS	TOPI
DEBOUNCE	1 Second

PITOT/STATIC COLD L-R-STBY	
DESCRIPTION	These messages are displayed when the pitot/static heat is selected on, but current is not flowing in one of the heaters. It is also displayed if the HEAT is selected OFF, and the airplane is in the air. The advisory message is displayed on ground when the PITOT/STATIC switch is selected OFF.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

PRESS SOURCE NOT NORM	
DESCRIPTION	This message is displayed when the pressurization selector in the cockpit is not in the NORM position, and emergency pressurization is not active.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

RADOME FAN FAIL	
DESCRIPTION	This message is displayed when the fan in the nose radome has failed.
INHIBITS	LOPI, TOPI
DEBOUNCE	1.5 Seconds

RAT HEAT FAIL L-R	
DESCRIPTION	This message is displayed when the FADEC detects a failure of the TTO heater on one or both engines.
INHIBITS	LOPI, TOPI, POD
DEBOUNCE	Standard

RETRIM L-R WING DOWN	
DESCRIPTION	This message indicates that the autopilot is detecting a lateral mistrim.
INHIBITS	TOPI
DEBOUNCE	5 Seconds

RETRIM NOSE UP-DOWN	
DESCRIPTION	This message indicates that the autopilot is detecting a longitudinal mistrim.
INHIBITS	TOPI
DEBOUNCE	5 Seconds

RUDDER BIAS FAULT	
DESCRIPTION	This message is displayed when the rudder bias control valve is out of position.
INHIBITS	LOPI, TOPI
DEBOUNCE	1 Second

RUDDER BIAS HEAT FAIL	
DESCRIPTION	This message is displayed when the rudder bias heater blanket has failed as determined by the Rudder Bias Heater PC card.
INHIBITS	LOPI, TOPI, *SIPI
DEBOUNCE	Standard

* The message is also inhibited by an engine and/or APU start on the ground.

STAB MISCOMPARE	
DESCRIPTION	This message is displayed when the horizontal stabilizer is not in the correct position for airplane configuration, or the Two Position Tail PCB receives contradictory or invalid inputs
INHIBITS	LOPI
DEBOUNCE	Standard

TAIL DE-ICE FAIL L-R	
DESCRIPTION	This message is displayed when a failure of the tail de-icing system is detected by the Tail De-Ice PC Card.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

TAILCONE ACC DOOR	
DESCRIPTION	This message is displayed when the tailcone access door is not properly secured.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

TAWS BASIC FAIL	
DESCRIPTION	This message is displayed when the radio altimeter based ground proximity modes of the TAWS function have failed, and the TAWS SYSTEM FAIL message is not active.
INHIBITS	LOPI, TOPI
DEBOUNCE	1 Second

TAWS SYSTEM FAIL	
DESCRIPTION	This message is displayed when all TAWS functions (ground prox, windshear, and terrain) have failed.
INHIBITS	LOPI, TOPI
DEBOUNCE	1 Second

TAWS TERR FAIL	
DESCRIPTION	This message is displayed when the enhanced modes of the TAWS function have failed, and the TAWS SYSTEM FAIL message is not active.
INHIBITS	LOPI, TOPI
DEBOUNCE	1 Second

NOTES

(*) = with exceptions

Table 31-4. AMBER EICAS MESSAGES (CONT)

TAWS TERR NOT AVAIL	
DESCRIPTION	This message is displayed when the GPS data received by the TAWS unit is not within required accuracy, or GPS data is not available.
INHIBITS	LOPI, TOPI
DEBOUNCE	1 Second

TAWS WINDSHEAR FAIL	
DESCRIPTION	This message is displayed when the windshear modes of the TAWS funtion have failed, and the TAWS SYSTEM FAIL message is not active..
INHIBITS	LOPI, TOPI
DEBOUNCE	1 Second

WINDSHIELD HEAT INOP L-R	
DESCRIPTION	This message is displayed when the controller has detected a failure
INHIBITS	LOPI, TOPI, *ESDI, SIPI
DEBOUNCE	*8 Seconds

* The 8-second debounce and engine shutdown are removed by windshield rotary test. The engine shutdown inhibit (ESDI) is also removed in the air.

WINDSHIELD OVERTEMP L-R	
DESCRIPTION	This message is displayed when the windshield controller has detected an overheat situation..
INHIBITS	LOPI, TOPI
DEBOUNCE	*4 Seconds

* The 4-seconds debounce is removed by indshield test.

WING ANTI-ICE COLD L-R	
DESCRIPTION	This message is displayed when WING ANTI-ICE or CROSSFLOW is selected ON, but too much time has elapsed before the wing has reached sufficient temperature, or wing anti-ice surfaces warmed up, but have cooled off again.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

WING ANTI-ICE OVERTEMP L-R	
DESCRIPTION	This message is displayed when one of the 6 over-temperature switches (3 switches in each wing) gets too hot.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

(*) = with exceptions

NOTES

Table 31-5. WHITE EICAS MESSAGES

AC GENERATOR BEARING L-R	
DESCRIPTION	This message is displayed when either of, or both of the AC generator bearings have worn out.
INHIBITS	LOPI, TOPI, ESDI, EFI, SIPI
DEBOUNCE	Standard

APU FIRE BOTTLE LOW	
DESCRIPTION	This message is displayed when the APU fire bottle is low, as measured by a pressure switch on the bottle.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

APU GENERATOR OFF	
DESCRIPTION	This message is displayed when the APU is on and the APU generator relay is not closed.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

CAS MISCOMPARE	
DESCRIPTION	This message is displayed when there is a miscompare of EICAS messages or aurals between the DCU channels.
INHIBITS	LOPI, TOPI
DEBOUNCE	20 Seconds

DCU FAN FAIL	
DESCRIPTION	This message is displayed when the DCU cooling fan has failed while aircraft is in flight. The message remains white until landing.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

DCU RIGGING INVALID	
DESCRIPTION	This message is displayed when the flap position sensor and/or FDR flight surface position sensor RVDT rigging data stored is invalid and rerigging needs to be performed.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

ENGINE ANTI-ICE COLD L-R	
DESCRIPTION	This message indicates that the ANTI-ICE is selected ON and the surface has not yet warmed up.
INHIBITS	LOPI, TOPI, ESDI, SIPI
DEBOUNCE	1 Second

ENGINE VIBRATION L-R	
DESCRIPTION	This message is displayed when the engine vibration exceeds the allowed limit.
INHIBITS	LOPI, TOPI, ESDI, EFI, SIPI
DEBOUNCE	Standard

FDR FAIL	
DESCRIPTION	This message is displayed when the Avionics Master Switch is selected ON and the FDR has send a fail discrete output.
INHIBITS	LOPI, TOPI
DEBOUNCE	7 Seconds

FIREWALL SHUTOFF L-R	
DESCRIPTION	The advisory white message indicates normal operation.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

FUEL BOOST PUMP ON L-R	
DESCRIPTION	The WHITE message is displayed when the fuel boost pump is selected ON, the APU is running, or not turned on by low fuel pressure.
INHIBITS	LOPI, TOPI, SIPI
DEBOUNCE	5 Seconds

FUEL CROSS FEED	
DESCRIPTION	The WHITE message is displayed when the fuel crossfeed valve is commanded open from the cockpit crossfeed switch.
INHIBITS	LOPI, TOPI, SIPI
DEBOUNCE	*Standard

HYDRAULIC PRESSURE	
DESCRIPTION	The WHITE message is displayed when the hydraulic pressure is in the hydraulic system.
INHIBITS	
DEBOUNCE	*Standard

* The WHITE message is not inhibited.

IAPS FAULT	
DESCRIPTION	This message is displayed when the IEC monitor has detected a fault in the environmental control of the IAPS in-flight.
INHIBITS	LOPI, TOPI
DEBOUNCE	1 Second

NEW DATALINK MESSAGE	
DESCRIPTION	This message is displayed when a Universal Graphical Weather image or ACARS text message is available for viewing.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

(*) = with exceptions

NOTES

Table 31-5. WHITE EICAS MESSAGES (CONT)

NO TAKEOFF	
DESCRIPTION	On the ground, the WHITE NO TAKEOFF message will illuminate if one or more of the following conditions exist: • Flaps not within takeoff range (<7° or >15°) • Elevator out of trim for takeoff • Horizontal Stabilizer is out of takeoff position • Speed Brakes are out of takeoff position
INHIBITS	LOPI, In Air
DEBOUNCE	Standard

PITOT/STATIC COLD L-R-STBY	
DESCRIPTION	The WHITE message is displayed on ground when the pitot/static switch is selected OFF.
INHIBITS	LOPI, TOPI, *SIPI
DEBOUNCE	Standard

RUDDER BIAS COLD	
DESCRIPTION	This message is displayed while the rudder bias heater system is cold and it is not failed.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

SELCAL DATALINK	
DESCRIPTION	This message is displayed when the SELCAL code is received on the datalink.
INHIBITS	LOPI, TOPI
DEBOUNCE	1 Second

SELCAL HF 1-2 VHF 1-2-3	
DESCRIPTION	SELCAL is a system that monitors the HF and VHF COMM radio for an aircraft specific code sequence. This message is displayed when the code for that particular aircraft is received.
INHIBITS	LOPI, TOPI
DEBOUNCE	1 Second

SPEED BRAKES	
DESCRIPTION	This message is displayed when either speed brake panel is extended.
INHIBITS	TOPI
DEBOUNCE	Standard

TAIL DE-ICE PRESS ON L-R	
DESCRIPTION	This message is displayed when there is air pressure in one or both tail deice boots.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

WING ANTI-ICE COLD L-R	
DESCRIPTION	This message is displayed when wing anti-ice or crossflow is selected ON, but one or both surfaces have not warmed up yet.
INHIBITS	LOPI, TOPI
DEBOUNCE	Standard

(*) = with exceptions

NOTES

ROTARY TEST KNOB (XL/XLS)

This section describes the indications in each detent position of the rotary TEST knob. Certain indications must be present to verify a satisfactory self-test before proceeding to the next position. Following is a brief description of each of these indications.

Off Position—With the rotary knob in the OFF position, the red light above the rotary knob extinguishes and the test system is inoperative.

NOTE

The red light above the rotary TEST knob illuminates for all the other test positions, including the SPARE position.

FIRE WARN Position—With the rotary TEST knob in the FIRE WARN position, the LH–RH ENGINE FIRE lights on the fire tray illuminate.

LDG GEAR Position—With the rotary TEST knob in the LDG GEAR position, the green LH, RH, and NO lights illuminate, The red GEAR UNLOCK light illuminates, the gear warning horn sounds.

BATT TEMP Position—With the rotary TEST knob in the BATT TEMP position, the red BATT O'TEMP and >160° annunciator lights flash, The battery temperature gauge indicates 160°F, The MASTER WARNING light flashes. Press the MASTER WARNING light and verify the light extinguishes.

STICK SHAKER Position—The STICK SHAKER fires immediately on pilot and copilot columns. The angle of attack indicator needle moves to the top of the RED band.

T/REV—The left and right, ARM, UNLOCK, and DEPLOY lights illuminate steady. The MASTER WARNING RESET switchlights flash (approximately two flashes per second). Press MASTER WARNING RESET and verify light extinguishes.

W/S TEMP—With windshield heat selected on, the L–R W/S O'HEAT annunciator illuminates steady for 3 to 4 seconds then extinguish.

NOTE

If windshield heat is selected on with the engines shut down, W/S FAULT illuminates because the AC alternator is not supplying power.

OVERSPEED—The pulsating OVERSPEED audible warning horn sounds. The MADC output reverts to Functional Test Mode and PFD1/2 indicates 265 KIAS, Mach 0.4, 5,000 feet altitude and a vertical speed of 2,000 ft/min.

ANTI-SKID—With the antiskid switch on, the ANTI-SKID INOP annunciators flash for 3 to 4 seconds then extinguish. The MASTER CAUTION RESET switchlights illuminate steady during the self-test.

ANNU—Turn AVIONIC PWR switch to ON. All annunciator panel legends illuminate, and altitude alert warning audio horn sounds.

The MASTER WARNING lights and MASTER CAUTION light illuminate steady and are non-cancelable.

Both red turbine overspeed lights flash.

The engine instrument LCDs show steady 8s.

The AP OFF and YD OFF annunciators illuminate steady.

The Flight Director Mode Selector (FDMS) buttons illuminate left to right and then remain steady.

The annunciators to the right of the FDMS panel illuminate steady. They are as follows, (but may vary depending on which options are installed):

1. FD/AP PFD 1, FD/AP PFD 2
2. TERR NORM, TERR INHIB
3. GPWS FLAP NORM, GPWS FLAP OVRD
4. GPWS G/S, CANCELLED
5. GPWS TEST
6. PHONE CALL

All A/P control panel lights illuminate steady.

The green A/C ON light above the A/C switch illuminates steady.

A pulsating aural horn, which is a combination of the following 3 inputs sounds:

1. Autopilot disconnect tone (steady).
2. Altitude alert tone (steady).
3. Phone call tone (pulsating and becomes steady when the PHONE CALL button is depressed).

AVN

Turn AVIONIC PWR switch to ON.

The MASTER CAUTION RESET switchlight illuminates steady and is cancelable.

The Flight Director Mode Selector (FDMS) buttons illuminates left to right and then remain steady.

All A/P control panel lights illuminate steady.

After a short delay the following annunciators flash indicating a successful self-test:

1. AP PITCH MISTRIM
2. AP ROLL MISTRIM
3. RADOME FAN
4. CHECK PFD1
5. CHECK PFD2

The annunciators to the right of the FDMS panel illuminate steady. They are as follows (but may vary depending on which options are installed):

1. FD/AP PFD 1, FD/AP PFD 2
2. TERR NORM, TERR INHIB
3. GPWS FLAP NORM, GPWS FLAP OVRD
4. GPWS G/S, CANCELLED
5. GPWS TEST
6. PHONE CALL

The AP OFF and YD OFF annunciators illuminate steady.

A pulsating aural horn, which is a combination of the following 3 inputs sound:

1. Autopilot disconnect tone (steady).
2. Altitude alert tone (steady).
3. Phone call tone (pulsating and becomes steady when the PHONE CALL button is depressed).

Spare

This position is a spare, and does not activate any system.

After the test is complete, rotate the test knob to OFF.

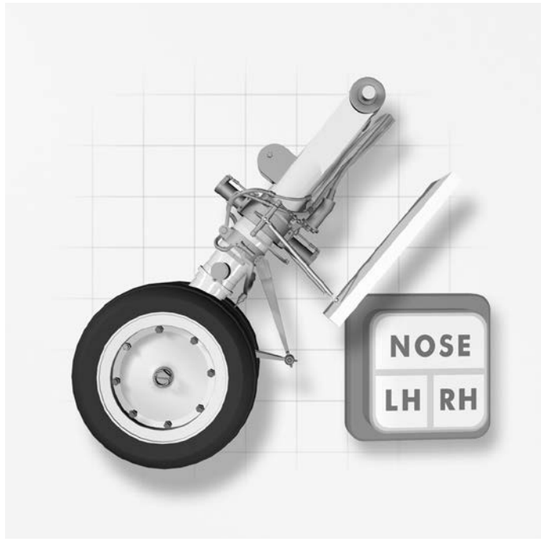
NOTES

Table 31-6. TEST INDICATIONS (XLS+)

ROTARY TEST POSITION	AURAL	CAS MESSAGE(S)	NOTES
FIRE WARN	Left and right engine fire. *(Baggage Smoke Detect), *(Lavatory Smoke Detect) voice aurals	ENGINE FIRE L-R *(BAGGAGE SMOKE DETECT) *(LAVATORY SMOKE DETECT)	This position illuminates either ENG FIRE switchlight, BOTTLE ARMED PUSH switchlights, and MASTER WARNING RESET switchlights *(Voice, aural and CAS messages only activate if system is installed. If baggage and lavatory smoke detect systems are both installed, DCU plays voice aural by priority).
LANDING GEAR	Gear warn tone	None	This position provides a test signal to the landing gear PCB to illuminate all three green down/lock lights and red unlock light on the gear handle. The gear warning tone signal is also triggered from the PCB to the DCU.
BATT TEMP	Battery overtemp voice aural	BATTERY OVERTEMP >160	This position swings the battery temperature indicator needle to 160°F. The MASTER WARNING RESET switchlights also illuminate along with the CAS message.
STICK SHAKER	Stall warning tone	None	This position tests the AOA computer, and the computer activates the pilot and copilot stick shaker motors, flash the AOA red indexer light, and moves the AOA pointer to the top of the AOA scale on the PFD. he stall warning tone signal to the DCU also comes from the computer.
THRUST REV	None	None	This position illuminates all T/R lights, ARM, UNLOCK, and DEPLOY, in the firetray and MASTER WARNING RESET switchlights.
W/S TEMP	Caution tone	WINDSHIELD HEAT INOP L-R WINDSHIELD OVERTEMP L-R	This position tests the W/S controller. With engine running, CAS messages and M/C switchlights illuminate for 3 to 4 seconds, and then extinguish, unless there is a W/S controller failure or a sensor failure. Then the CAS messages stay on. With engines shutdown, illuminates and remains on due to alternator not supplying power to the W/S controller.
OVER SPEED	Overspeed tone	None	This position provides a test signal to the DCP to trigger the tone. AVIONICS switchlight must also be ON to play the tone.
ANTISKID	Caution tone	ANTISKID FAIL	This position tests the skid control unit. The unit provides a fail signal to the DCU and triggers the CAS message and MASTER CAUTION RESET switchlights for 3 to 4 seconds. If there is a unit failure, then the CAS message stays illuminated.
ANNUNCIATOR	None	None	This position tells the DCU to illuminate the MASTER WARNING RESET and MASTER CAUTION RESET switchlights. All AOA indexer lights illuminate.
AVIONICS	None	None	This position tests all TAWS, except TAWS TEST, lighted switches. All green audio panel transmit select lights illuminate.
SPARE	None	None	Nothing should come on at this position.
OFF	None	None	Nothing should come on at this position.

NOTES

CHAPTER 32 LANDING GEAR



INTRODUCTION

This chapter presents the Landing Gear and brake systems for the Citation 560XL/XLS/XLS+ aircraft. General maintenance considerations are included, accompanied by functional and operational checks. References for this chapter and further specific information can be found in Chapters 5—"Time Limits/Maintenance Checks," Chapter 12—"Servicing," and Chapter 32—"Landing Gear," of the *Aircraft Maintenance Manual (AMM)*.

GENERAL

The landing, gear system for the 560XL/ XLS/XLS+ is controlled electrically and hydraulically actuated. The nose gear assembly consists of a single wheel assembly and an oil-over-air (nitrogen) strut; while the main gear assemblies also consist of a single wheel assembly, but an air-over-oil strut.

The nose gear tire is the chined type for water and slush deflection.

The main gear doors are mechanically linked to the main gear trunnions, so they extend and retract with the main gear and require no separate actuators. The nose gear has three doors. The aft "spade" door is linked to the nose gear trunnion, so it extends and retracts with the gear. The two forward "side" doors for the nose gear are actuated through a system of linked rods and torque tubes, so they are mechanically opened and closed as the nose gear extends and retracts.

The actuators for each gear incorporate internal mechanical downlocks to hold the gear in the extended position. The gear is held retracted by mechanical uplocks that are spring-loaded to lock. They are hydraulically released.

The main gear is equipped with hydraulically actuated disc brakes. An emergency (pneumatic) braking system is provided for use when hydraulic braking fails. Brake antiskid control prevents wheel skidding on wet, dry or icy runways after minimum wheel spin is attained.

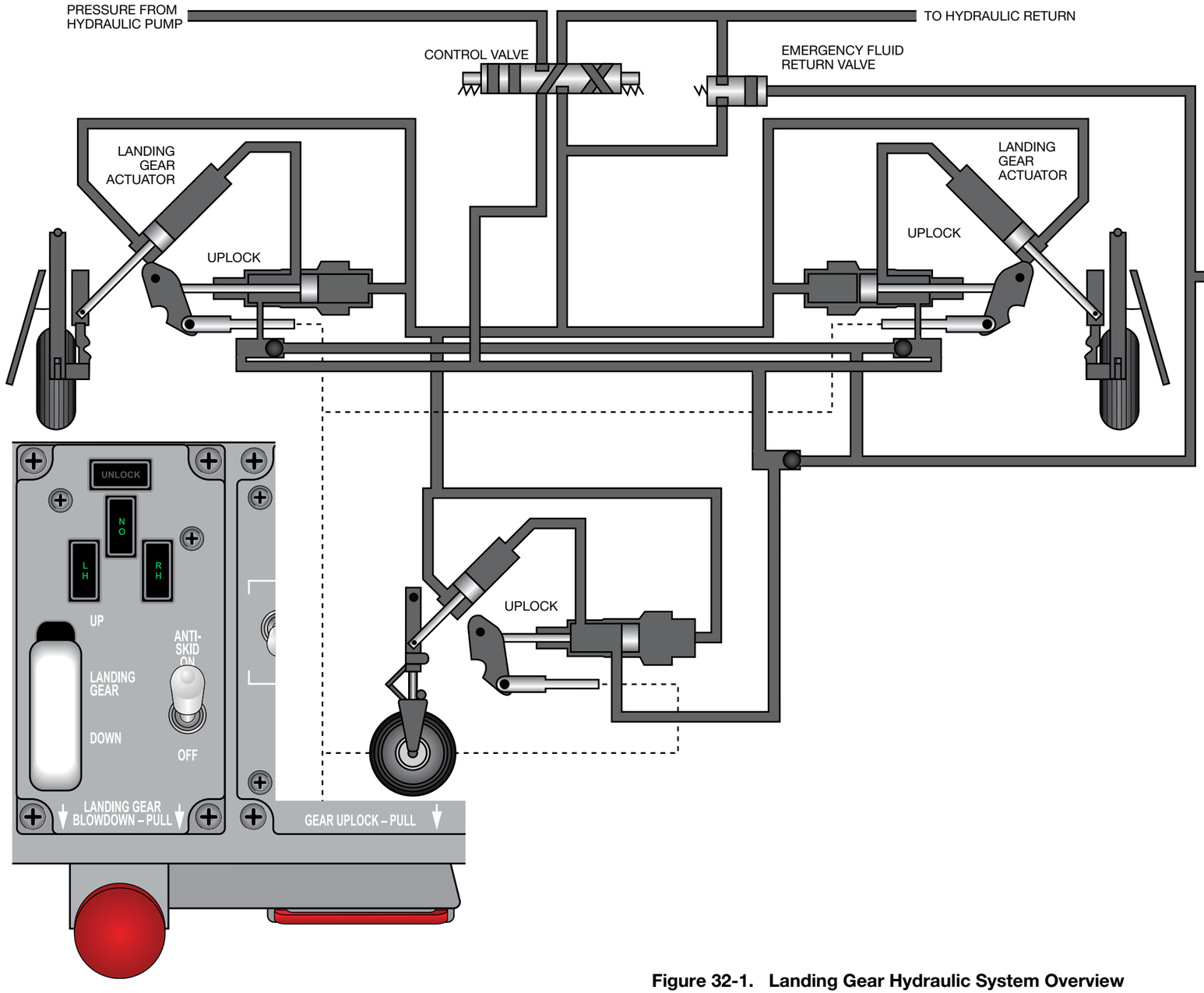


Figure 32-1. Landing Gear Hydraulic System Overview

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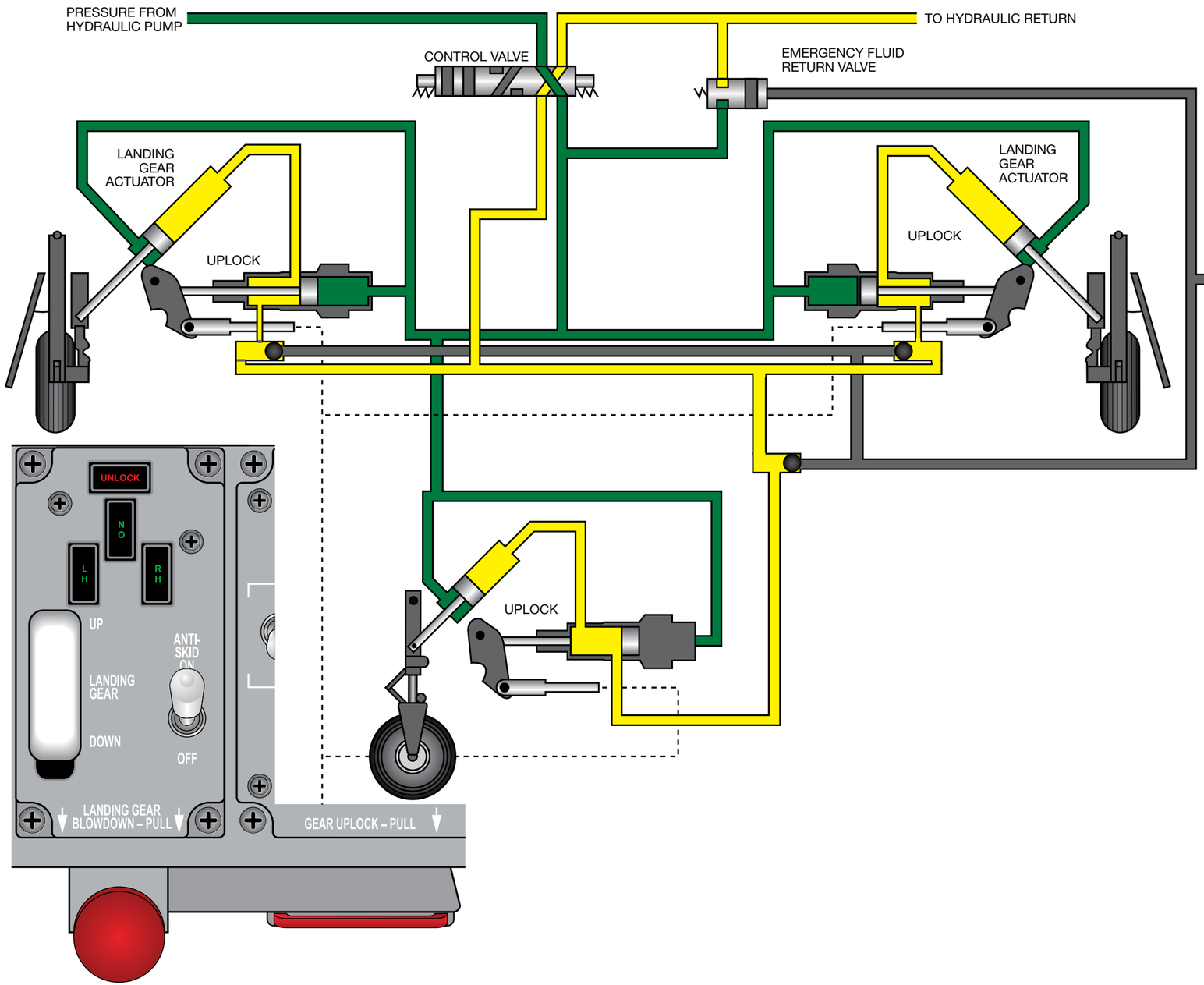
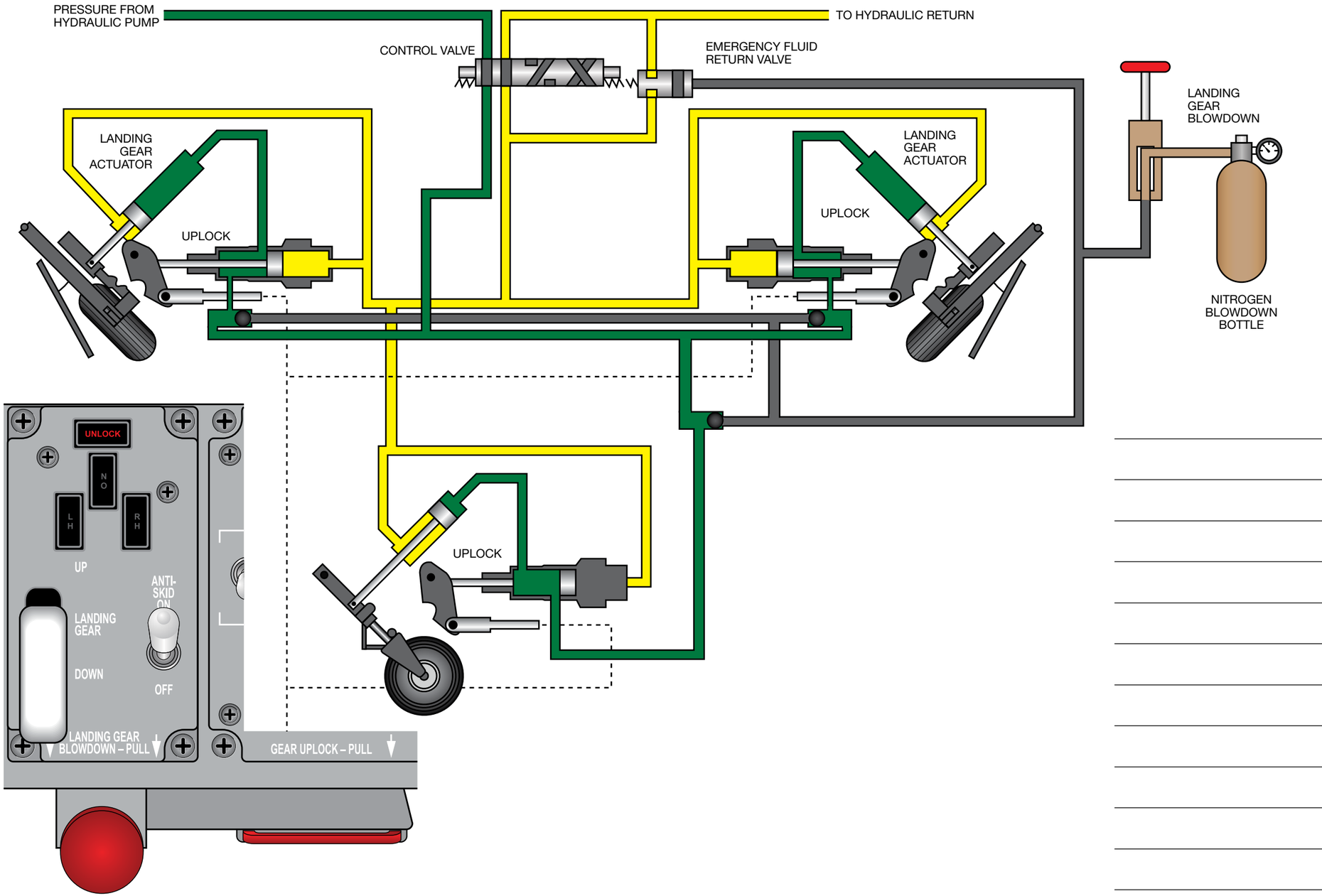


LEGEND
- STATIC FLOW
- RETURN PRESSURE
- PRESSURE (MAIN)
- NITROGEN PRESSURE

CONDITION
GEAR SELECTED—UP

NOTES

Figure 32-2. Landing Gear Retracting



NOTES

Figure 32-3. Landing Gear Extending

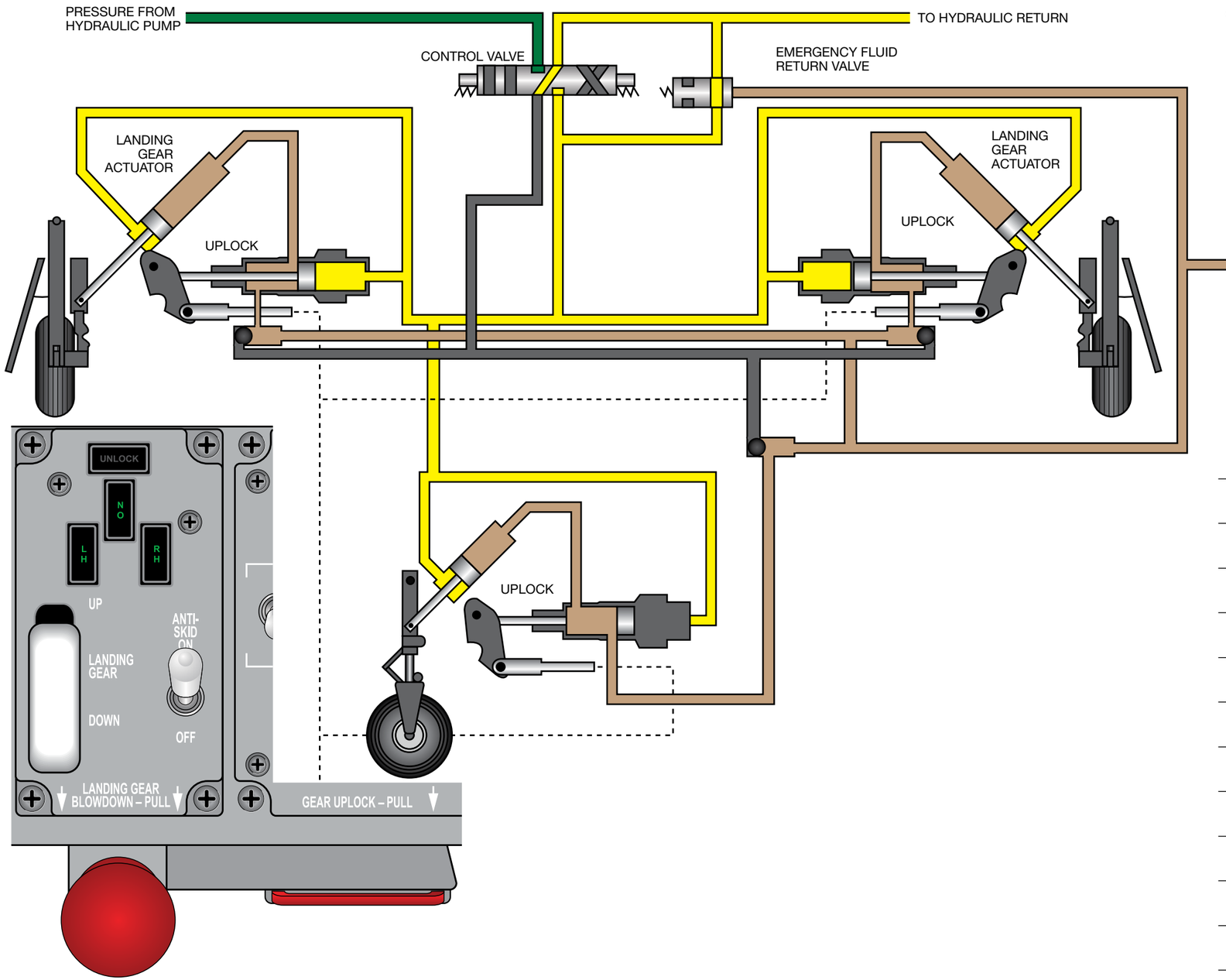


Figure 32-4. Landing Gear Emergency Extension

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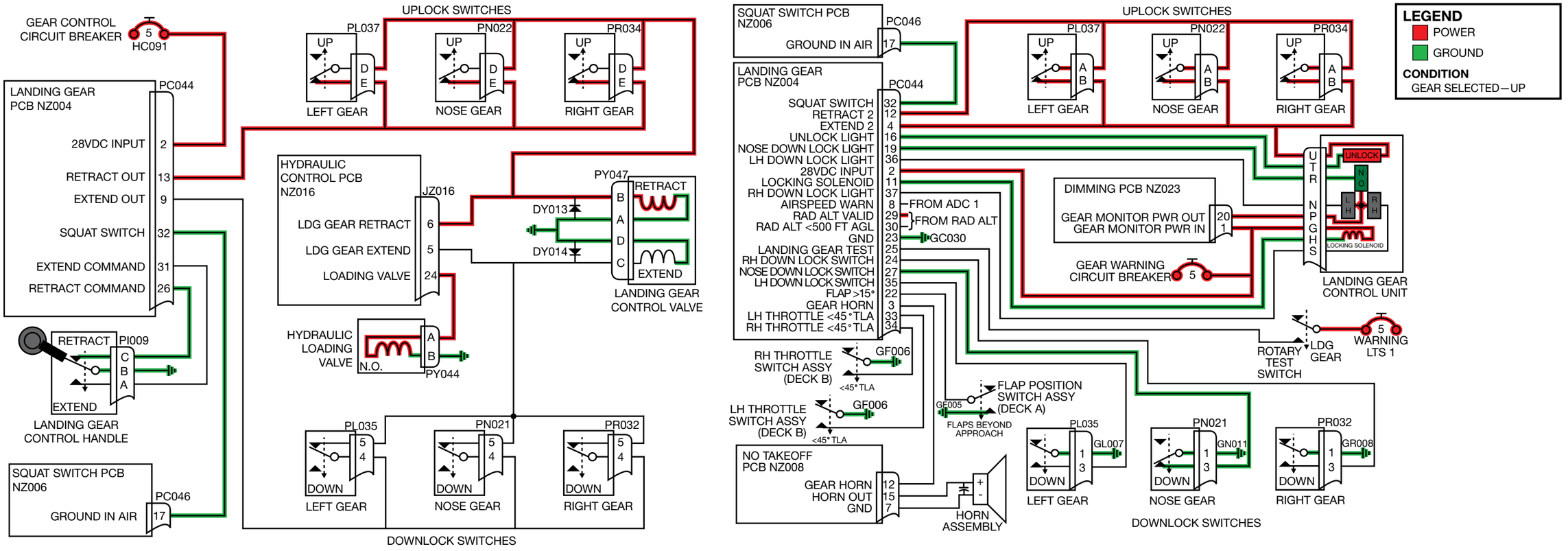

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Figure 32-5. Landing Gear Control and Landing Gear Warning (Retracting) (XL/XLS)

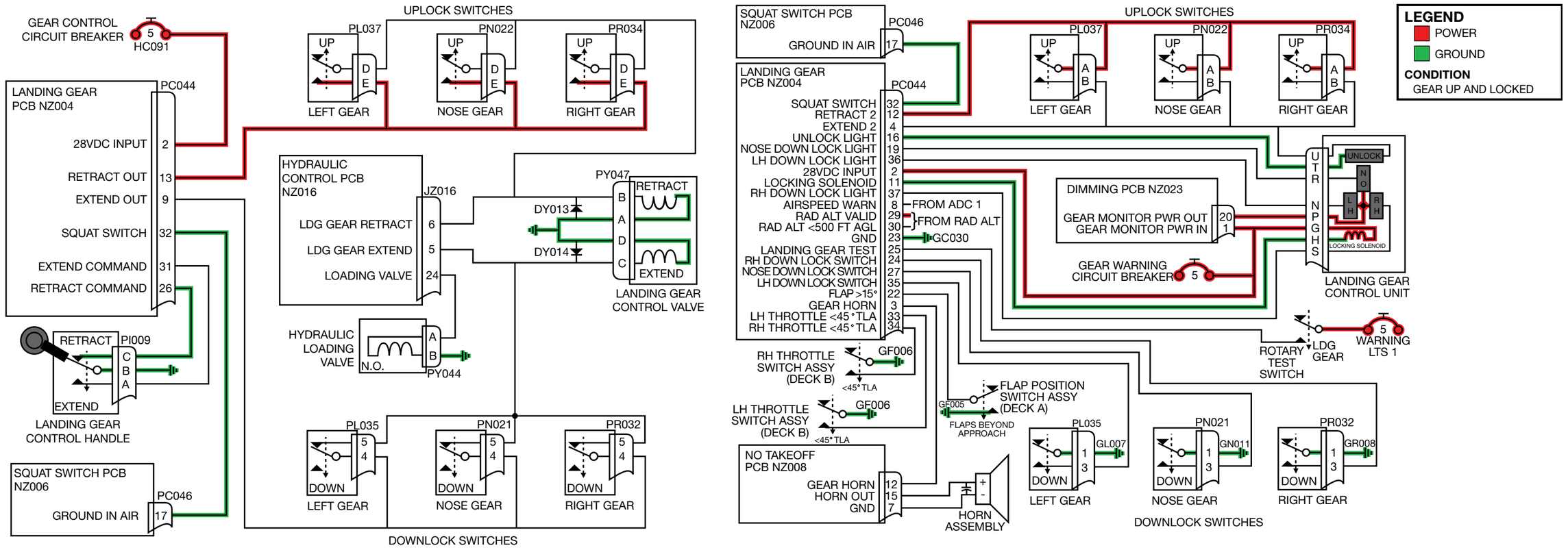

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Figure 32-6. Landing Gear Control and Landing Gear Warning (Retracted) (XL/XLS)

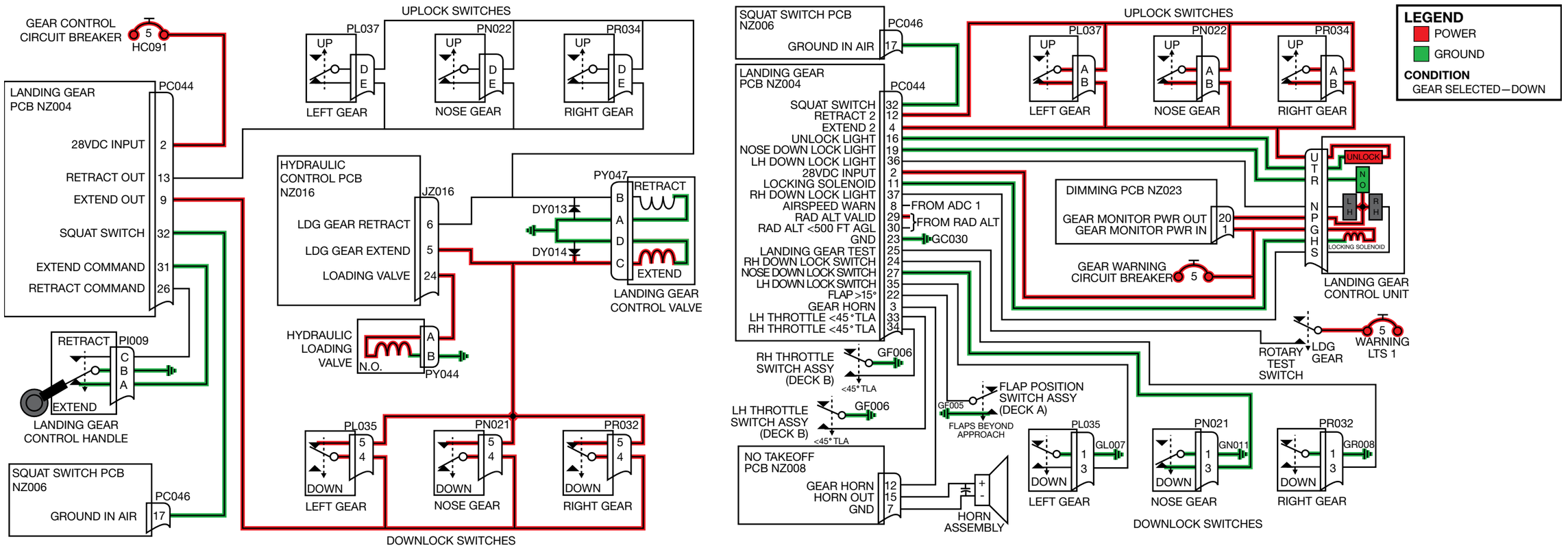

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Figure 32-7. Landing Gear Control and Landing Gear Warning (Extending with Nose Gear Down and Locked) (XL/XLS)

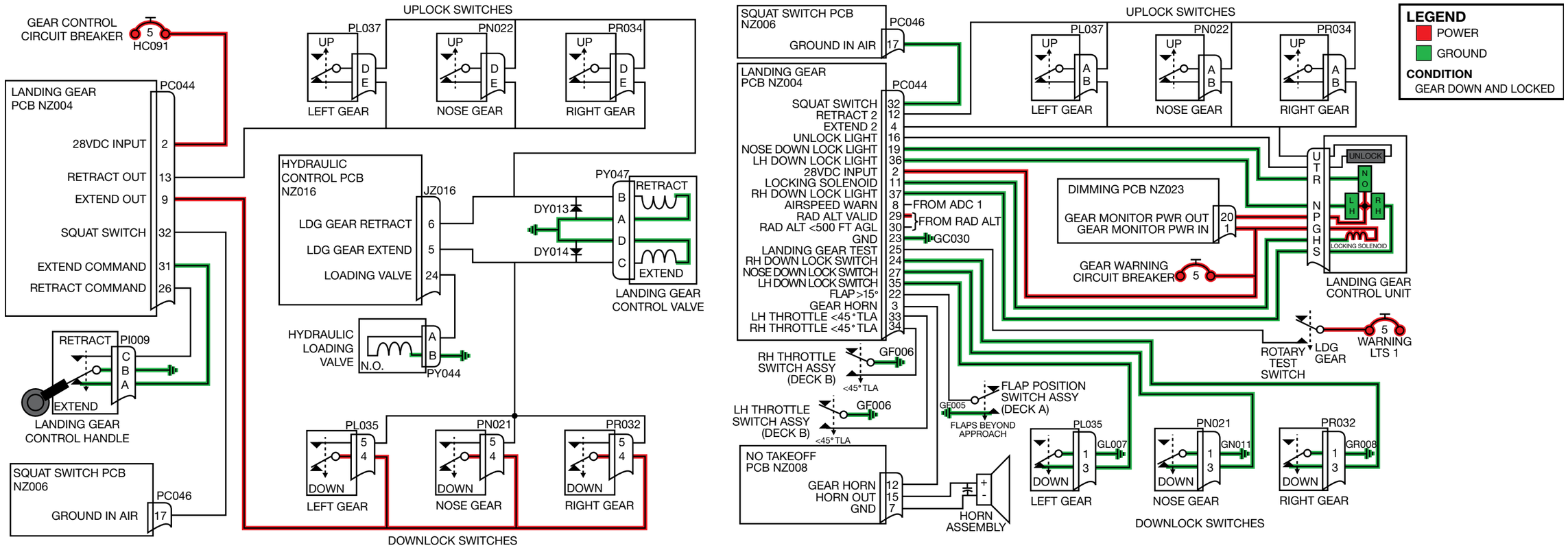

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Figure 32-8. Landing Gear Control and Landing Gear Warning (Extended) (XL/XLS)

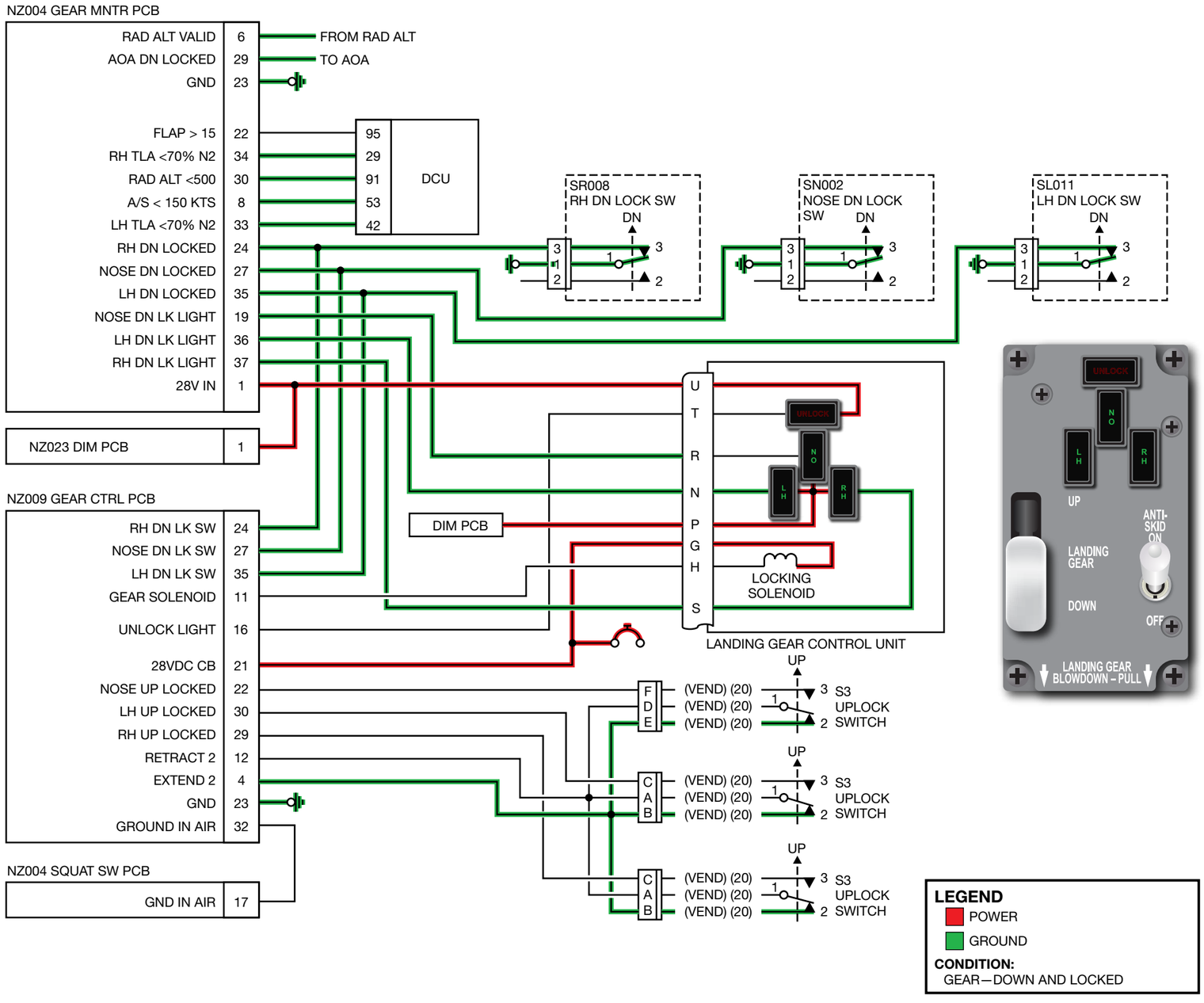


Figure 32-9. Landing Gear Electrical—Down and Locked (XLS+)

NOTES

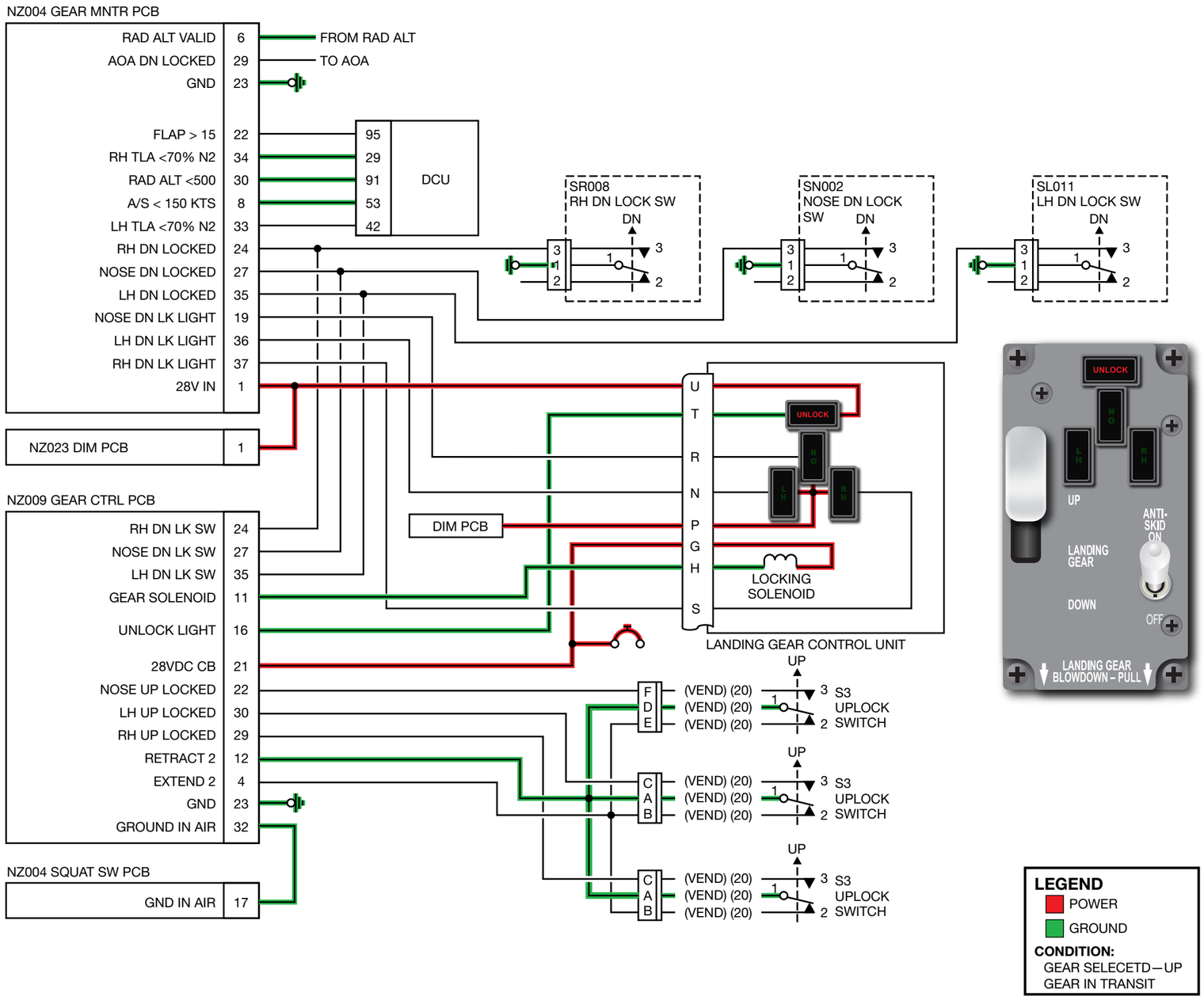


Figure 32-10. Landing Gear Electrical—In Transit Up (XLS+)

NOTES

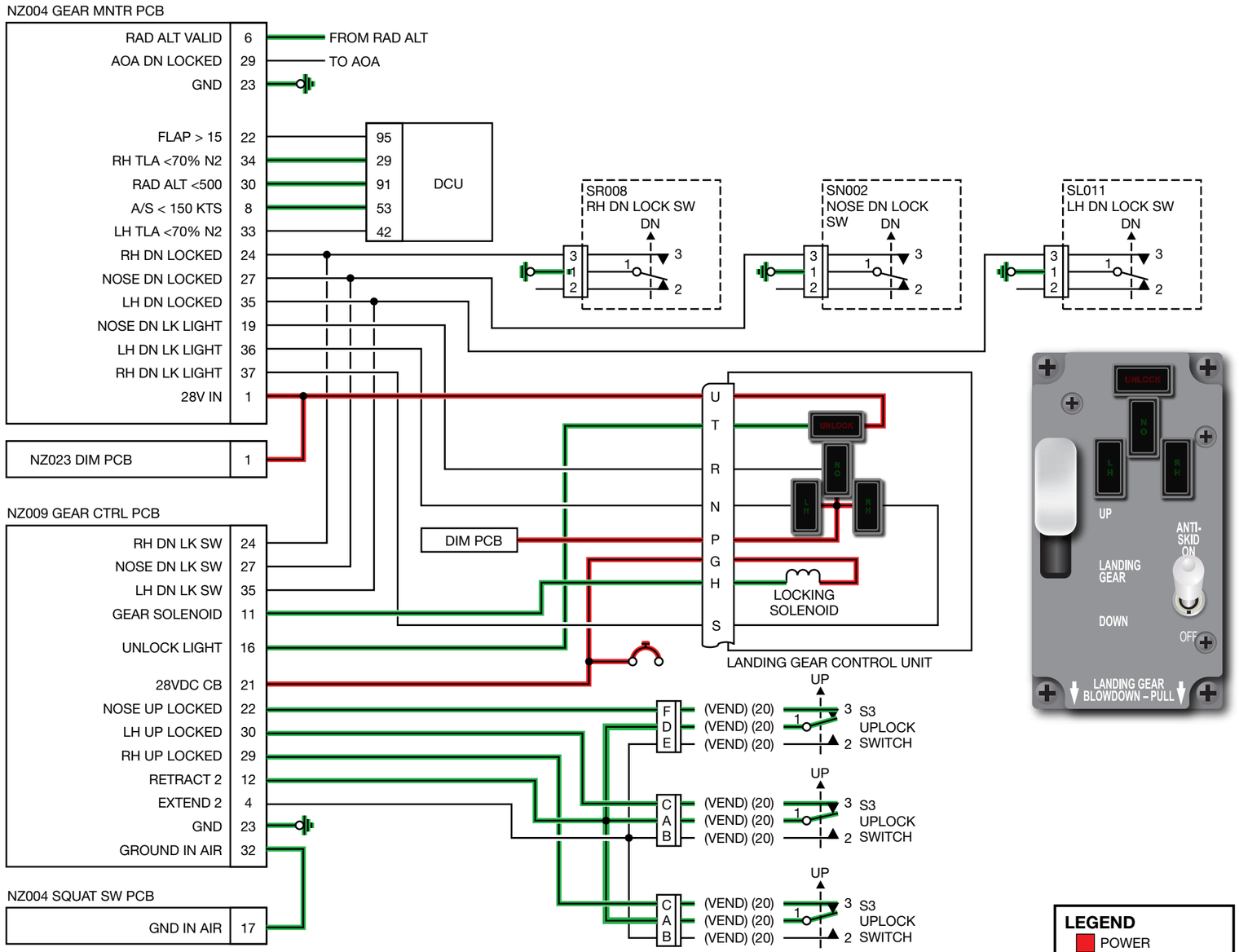


Figure 32-11. Landing Gear Electrical—Up and Locked (XLS+)

NOTES

CHAPTER 33 LIGHTS

INTRODUCTION

This chapter describes those units and components which provide for external and internal illumination on the Citation XL/XLS/XLS+. This chapter does not include lights for individual systems. The information in this chapter must be used in conjunction with Citation XL/XLS/XLS+ Wiring Diagram Manual to correlate data required to maintain the lighting systems that illuminate the interior and exterior of the airplane.

GENERAL

The Citation XL/XLS/XLS+ lighting consists of four major groups: interior, emergency, exterior, and tailcone lighting. Switches and rheostats control all lighting. Separate circuit breakers in the cockpit or tailcone J-box protect the system.

Interior lighting consists of direct, indirect,fluorescent, and incandescent lighting for the cockpit and cabin.

Emergency lighting is a separate independent system that provides automatic illumination in case of main DC electrical power failure, a +5G impact, or illumination of passenger safety lights.

Exterior lighting consists of lights for landing, taxi, recognition, anticollision, wing inspection, tail flood, and ground recognition beacon.

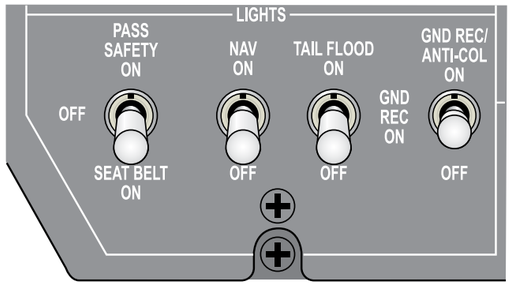
Tai1cone lighting consists of interior lighting in the tailcone and baggage compartment areas.

The Citation XLS/XLS+ incorporate light emitting diode (LED) lights to replace incandescent bulbs installed on the XL. LED lights operate at reduced temperatures that increase the life of the light assembly and reduce the possibility of heat damage to adjacent objects.

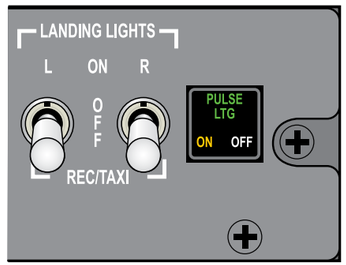
The following is a list of Citation XLS+ LED light assemblies:

- Accent lights in refreshment storage area
- Aft vanity lights (indirect lighting and furniture lighting) (halogen over toilet)
- Cabin divider lamps
- Cabin drop aisle emergency lights
- Cabin indirect lighting
- Emergency egress lights (overwing) (units 5560 and subsequent)
- Emergency exit signs
- Navigation light tail
- All other panel lights, i.e., vanity switch panel control, entry door light panel control

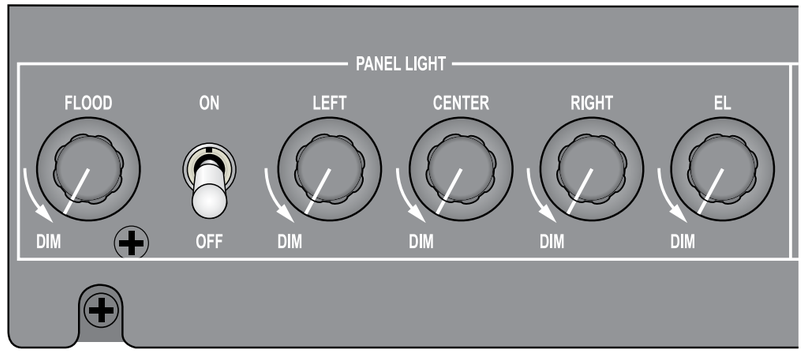
The XLS+ also incorporates LED anticollision lights, navigation lights, ground recognition lights, and AUX panel lights.



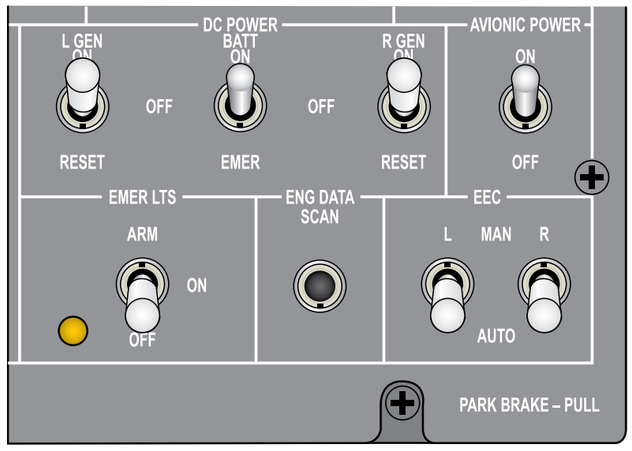
TILT LIGHT SWITCH PANEL



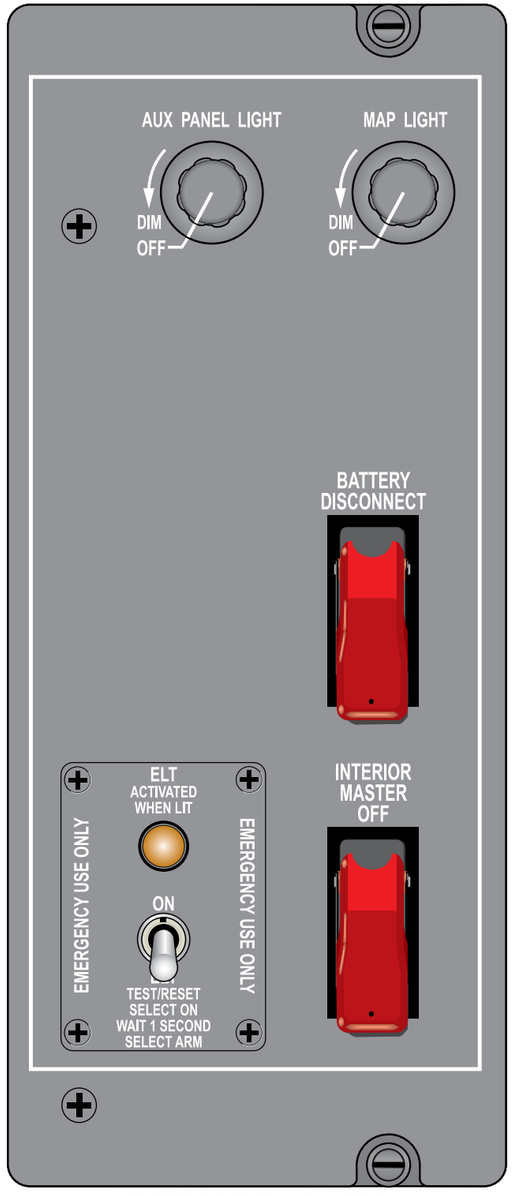
LANDING/REC/TAXI LIGHTS PANEL



DIMMING CONTROL PANEL



EMERGENCY LIGHTS PANEL



AUXILIARY LIGHTS PANEL

Figure 33-1. Lighting Control (XL/XLS)

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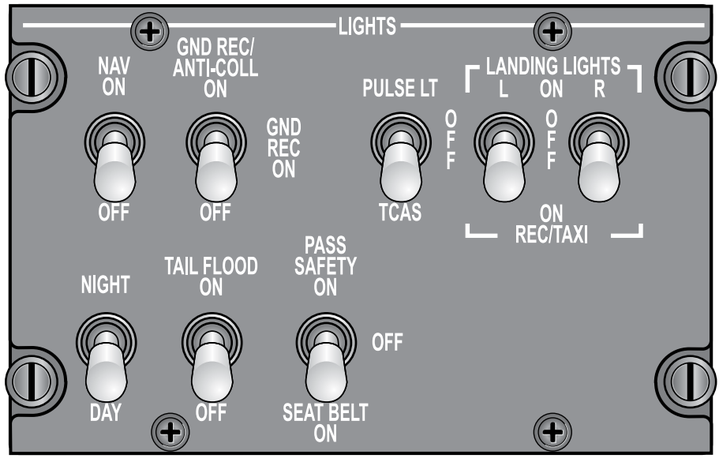
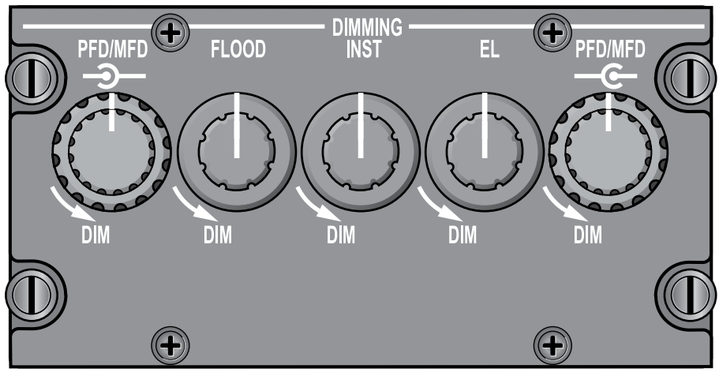
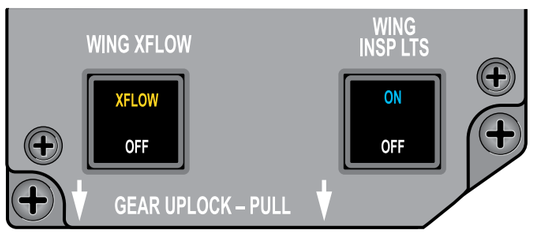


LIGHT SWITCH PANEL

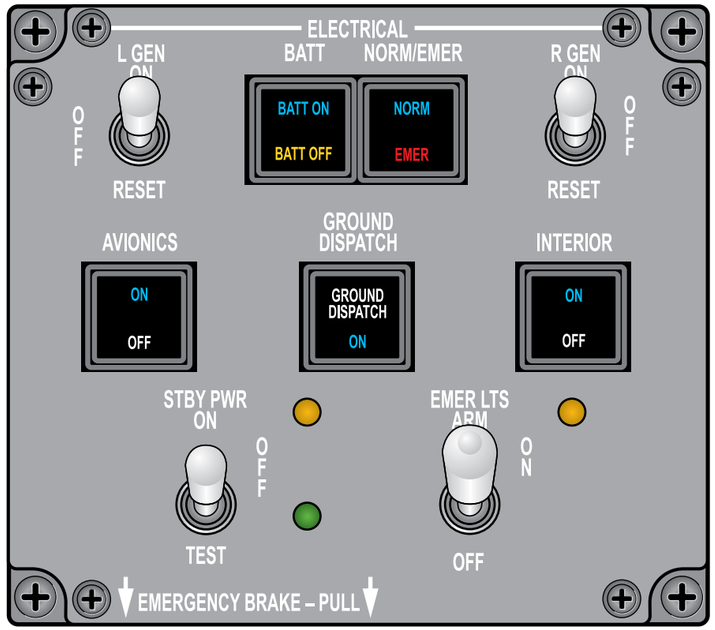


DIMMING CONTROL PANEL



WING INSPECTION LIGHTS PANEL

AUXILIARY LIGHTS PANEL



EMERGENCY LIGHTS PANEL

Figure 33-2. Lighting Controls (XLS+)

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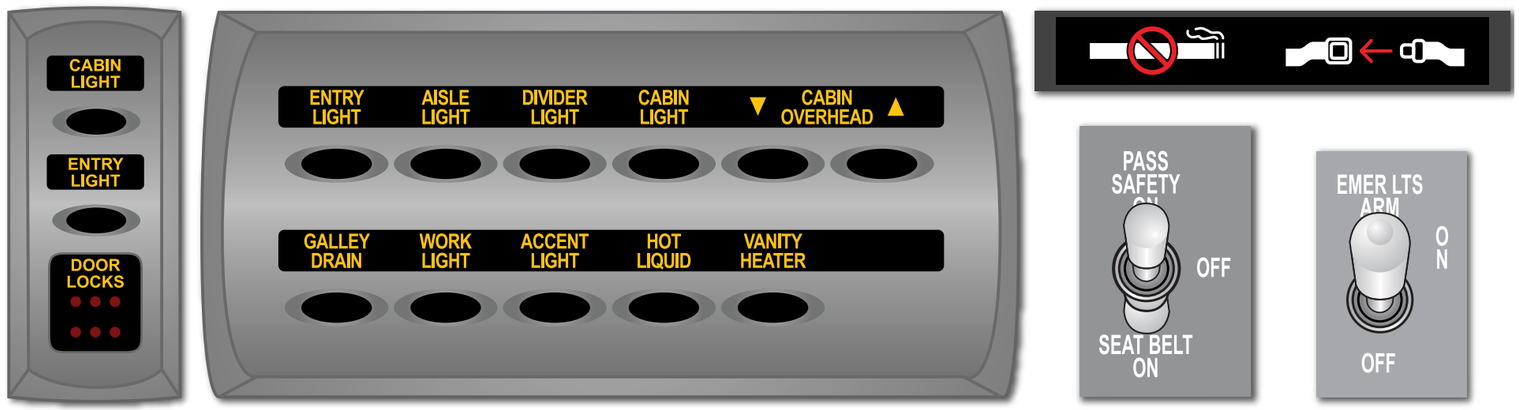

Figure 33-3. Interior Passenger Lights and Controls (XL/XLS/XLS+)

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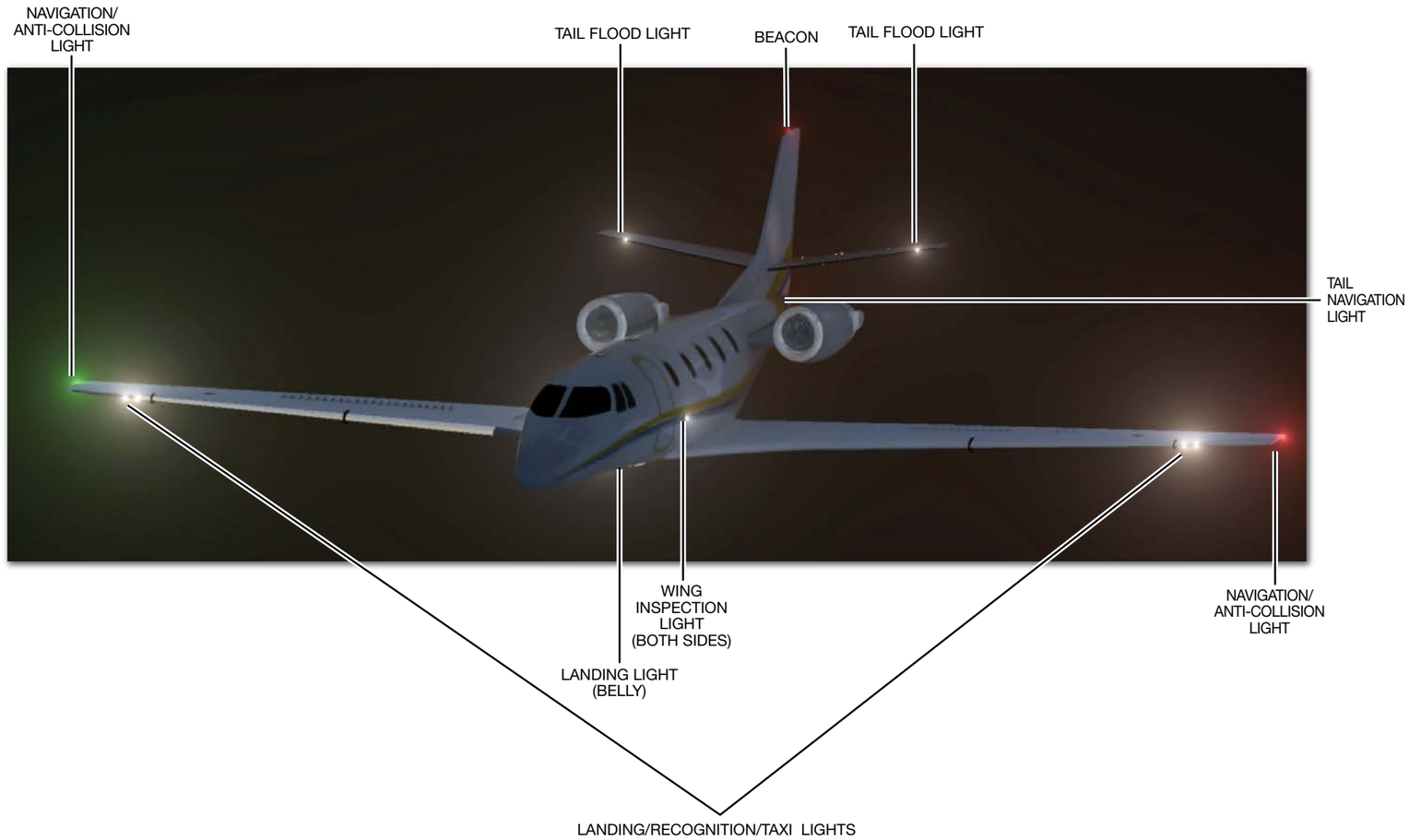

Figure 33-4. Exterior Lights (XL/XLS/XLS+)

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CHAPTER 34 NAVIGATION

INTRODUCTION

The navigation section describes units and components which provide aircraft navigational information. This includes pitot static, flight director, VOR and other navigational systems and indicators. Each Citation XL/XLS/XLS+ aircraft is delivered with complete *Avionics Wiring Diagrams* specifically prepared for that serial number aircraft.

GENERAL

Navigational information for the Citation XL/XLS is provided by pitot-static systems, Honeywell micro air data computer (MADC), radio altimeters, total air temperature (TOT) probes, angle of attack (AOA) system and magnetic compass. Electronic flight information system (EFIS), attitude heading reference system (AHRS), controllers, localizer, glideslope and marker beacon, radar, ground proximity warning system (GPWS), traffic alert and collision avoidance system (TCAS), global positioning system, and flight management systems (FMS) give the crew navigation information for flights. This information displays on either the primary or multifunction display screens and instruments in the cockpit.

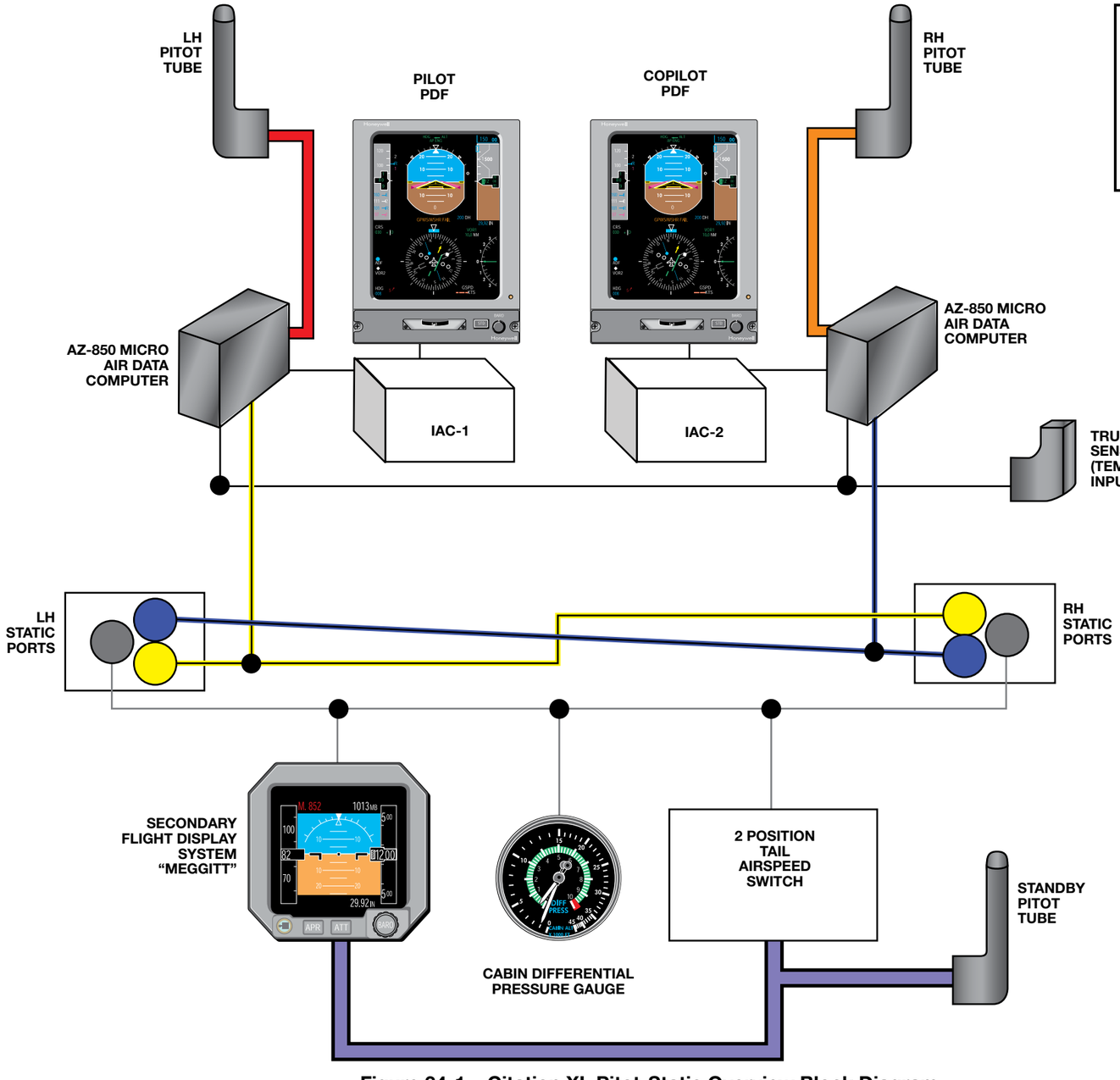

Figure 34-1. Citation XL Pitot-Static Overview Block Diagram

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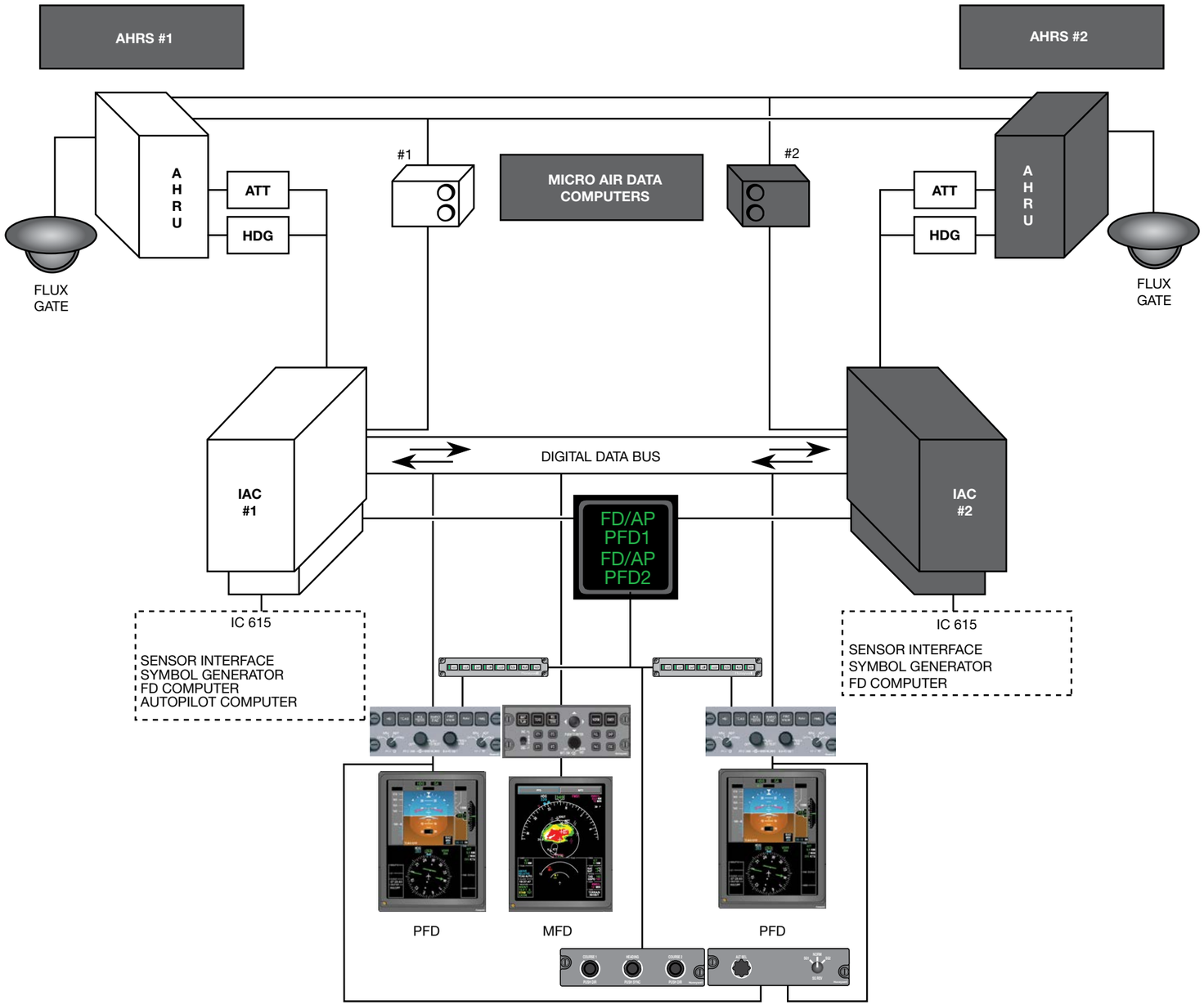

Figure 34-2. Navigation System (XLS)

NOTES

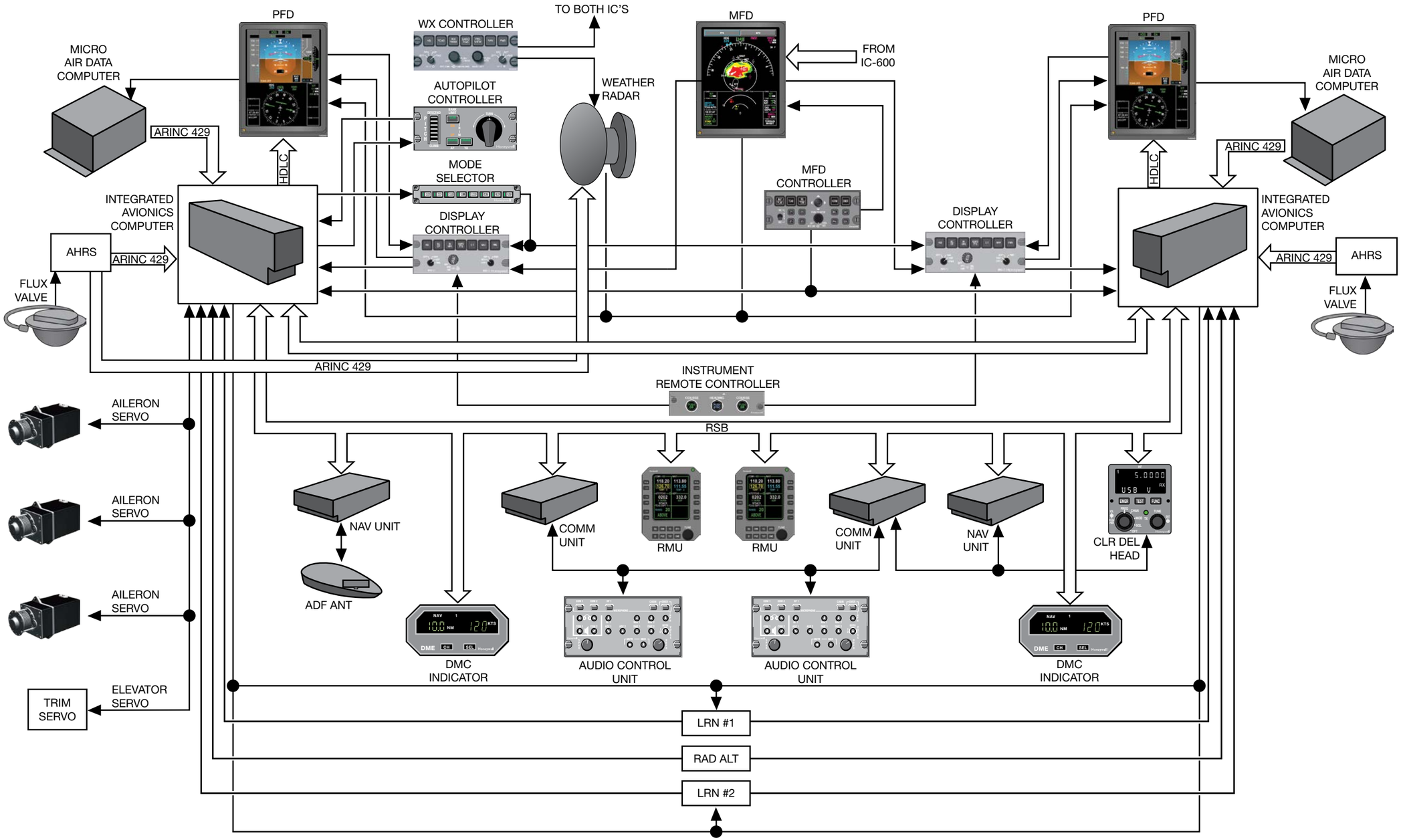

Figure 34-3. Primus 1000 Avionics Diagram (XLS)

NOTES

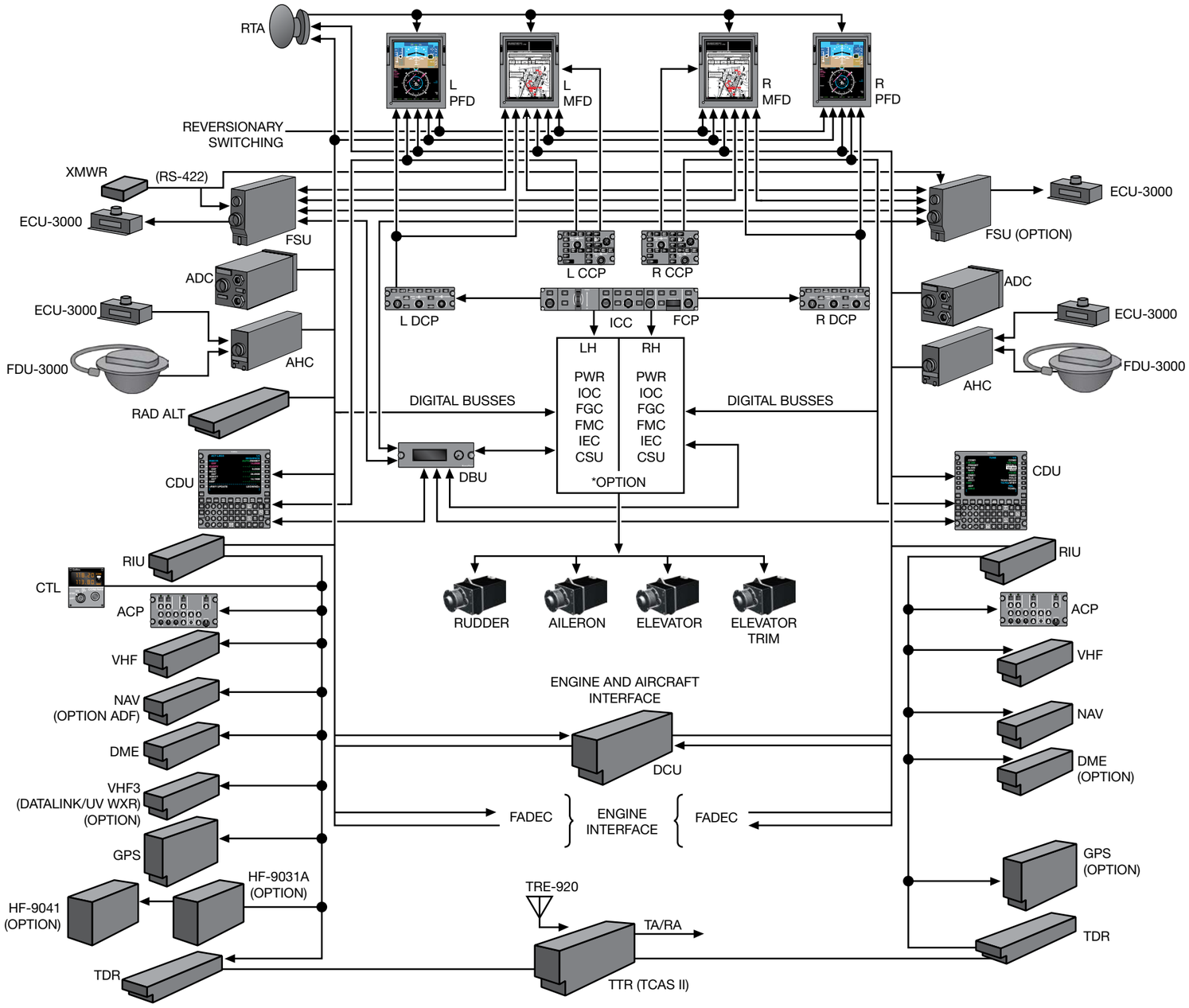

Figure 34-4. Proline 21 Avionics System Diagram (XLS+)

NOTES

CHAPTER 35 OXYGEN

INTRODUCTION

This chapter describes the oxygen system found on the Citation 560 XL/XLS/XLS+ aircraft. In addition to system descriptions, emphasis has been given to maintenance and servicing precautions, along with functional testing. References for this chapter and further specific information can be found in Chapters 5—"Time Limits/Maintenance Checks," Chapter 12—"Servicing," and Chapter 35—"Oxygen," of the *Aircraft Maintenance Manual (AMM)*.

GENERAL

The oxygen system consists of the crew oxygen system and the passenger oxygen system. Oxygen is available to the crew at all times and is available to the passengers either automatically (above a predetermined altitude) or manually (at any altitude by a cockpit control). The oxygen system primarily provides emergency oxygen.

OXYGEN SYSTEM DESCRIPTION

The oxygen system consists of:

- Pilot and copilot masks
- Dual passenger oxygen dropout boxes
- Altitude sensing pressure switch
- Composite oxygen bottle with a pressure regulator
  - 50 cubic foot—SNs 5001 through 5619
  - 77 cubic foot—SNs 5620 and Subsequent
- Oxygen pressure gauge
- Overboard pressure relief valve
- Oxygen filler valve
- Passenger oxygen control valve
- Necessary plumbing

Oxygen system flow schematics are provided in the crew and passenger oxygen system sections.

The oxygen system has a high-pressure and low-pressure side. The oxygen is stored in the high-pressure side in a composite 50 or 77 cubic foot bottle just to the right of the wheelwell in the nose compartment. The low-pressure side is controlled by a pressure regulator that attaches directly to the oxygen cylinder. The regulator is turned ON or OFF with the attached control handle. With the handle turned to the OFF position, the regulator functions as a shutoff valve while venting the low-pressure side of the system internally through the regulator. With the handle turned to the ON position and safety wired, the regulator provides a constant 70 ± 10 psi (482 ± 69 kPa) pressure to the low-pressure side of the system. The low-pressure side supplies oxygen to the crew outlets and to oxygen dropout boxes in the cabin.

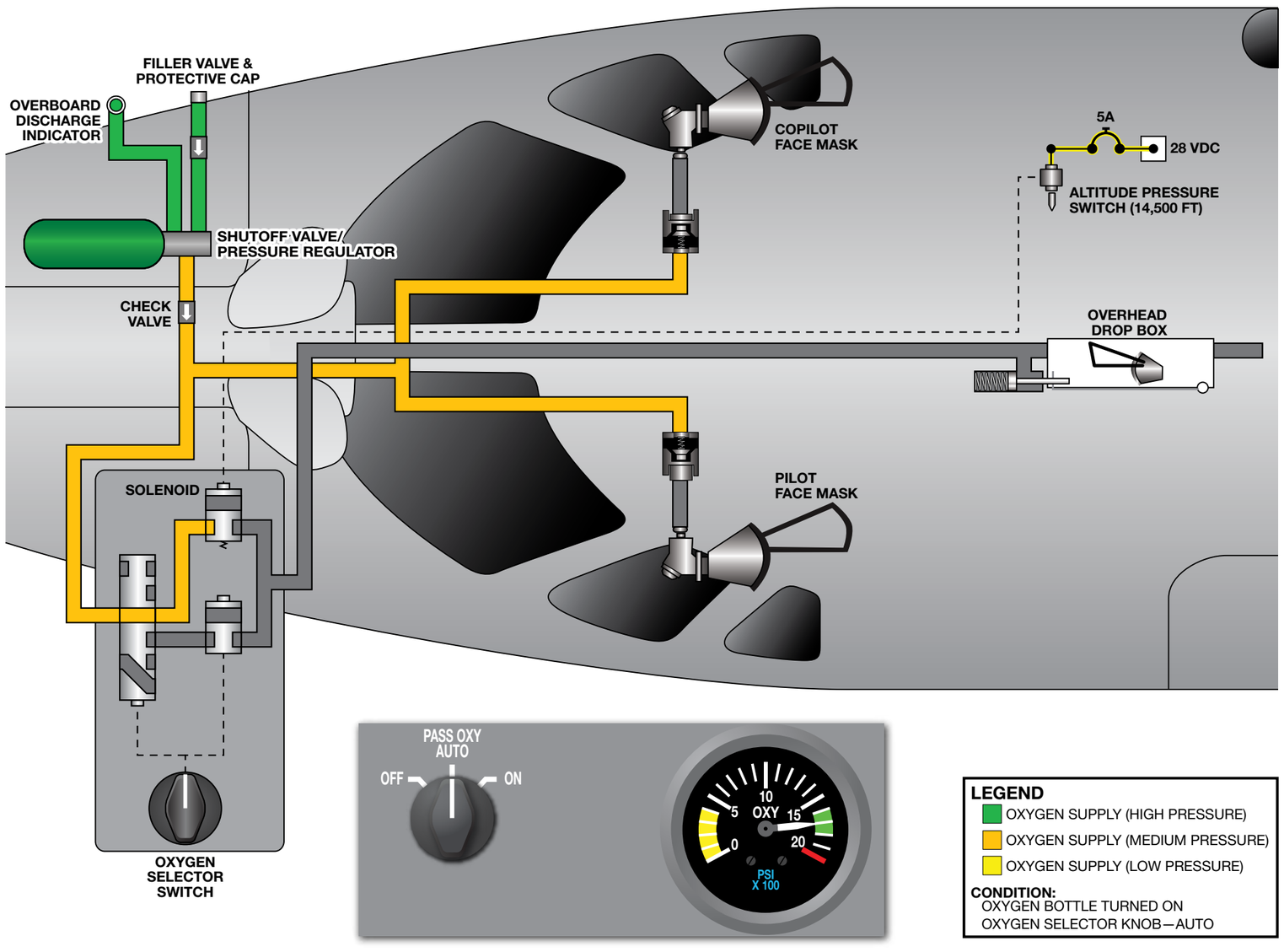

Figure 35-1. Oxygen System—Normal

The low-pressure side of the system of the system is split into two subsystems: one for the cabin and one for the cockpit. A passenger oxygen control valve separates the two halves of the system. Oxygen is always available to the crew through the crew distribution lines, but is blocked from entering the passenger system by the passenger oxygen control valve. The passenger oxygen control valve is a three-way, manual/solenoid-operated valve that has three positions: OFF, AUTO, and ON. Typically the valve is left in the AUTO position. With the valve in the AUTO position, when the cabin altitude increases to a pressure altitude of 14,500 ± 500 feet (4420 ± 152 m), the pressure altitude switch applies electrical power to the solenoid of the passenger oxygen control valve, opening the passenger oxygen control valve. When the passenger oxygen control valve opens, it allows 70 ± 10 psi (482 ± 69 kPa) of pressure to flow into the cabin oxygen system. This pressure is sufficient to deploy the doors on the oxygen dropout boxes and drop the passenger masks. In the event of a failure or at the discretion of the crew, the passenger system can be manually actuated by turning the passenger oxygen control valve to the ON position. The ON position manually opens the passenger oxygen control valve, deploying the doors on the oxygen dropout boxes and releasing the passenger masks. After deployment of the passenger masks, oxygen flow to the passenger is initiated by pulling the lanyard cord attached to the passenger mask, which in turn pulls the pintle pin. The control of oxygen flow into the passenger masks is achieved by a precision orifice between the supply line and the mask. When the passenger oxygen control valve is positioned to OFF, only the crew's oxygen system is operational and no oxygen flows to the cabin and the passenger masks.

NOTES

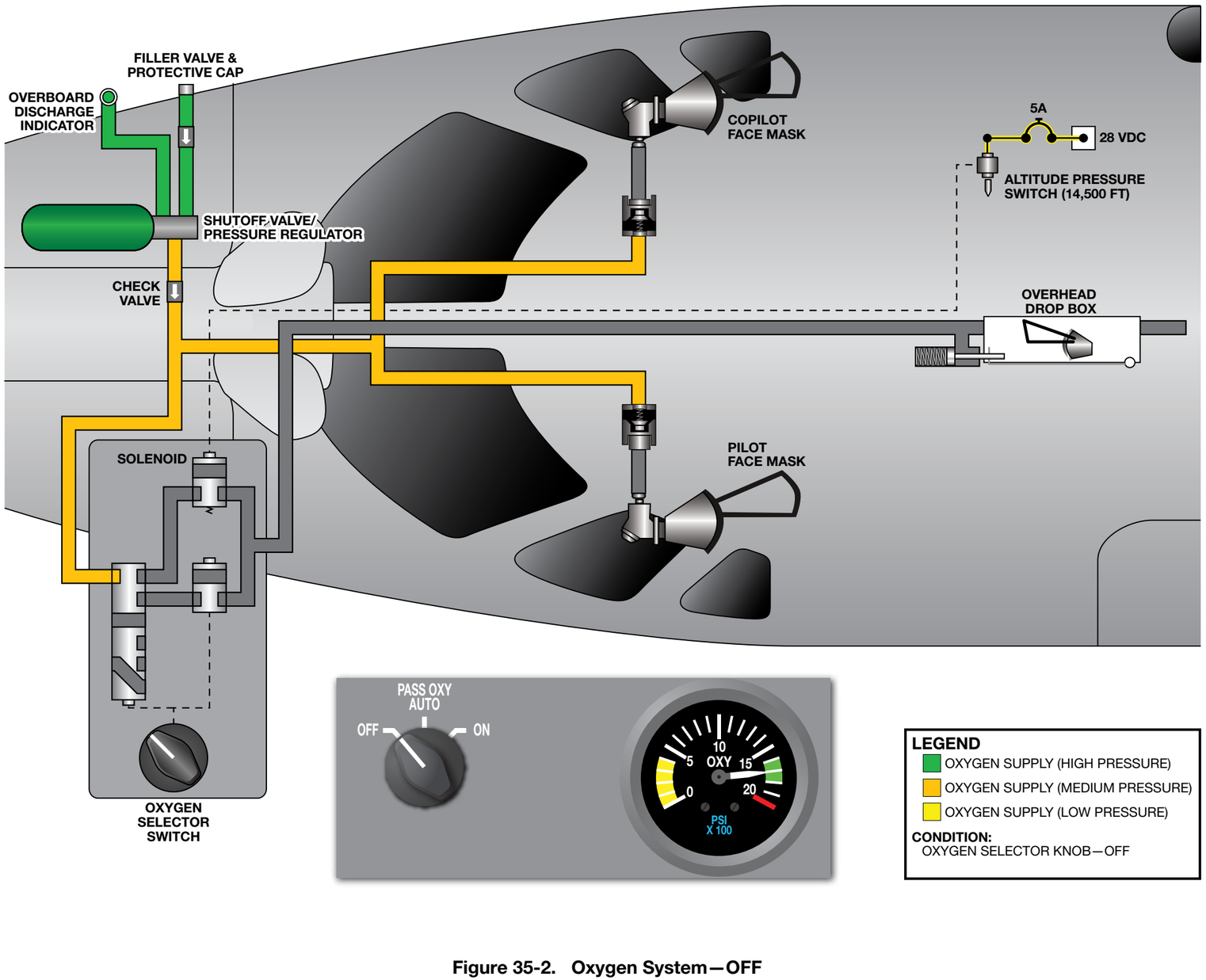

Figure 35-2. Oxygen System—OFF

NOTES

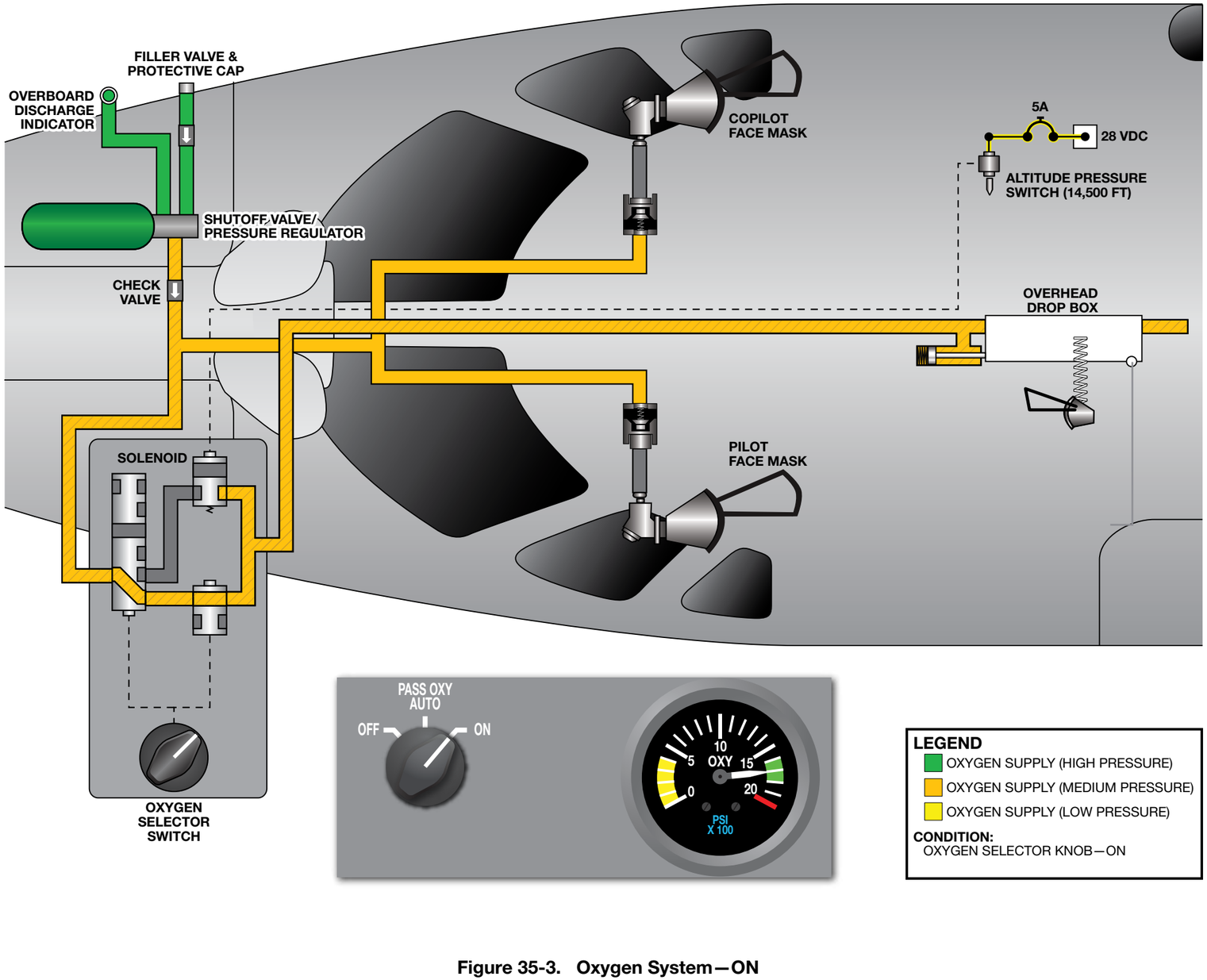

Figure 35-3. Oxygen System—ON

NOTES

CHAPTER 36
PNEUMATIC SYSTEM

INTRODUCTION

This chapter presents the pneumatic system for the Citation XL/XLS/XLS+ aircraft, with discussion primarily limited to the delivery and control of bleed air into the tail cone area and the service air system. Each bleed-air user system is covered in detail within the appropriate chapters of this training manual. General maintenance considerations are included, with an introduction to functional and operational checks. References for this chapter and further specific information regarding components or operation can be found in Chapter 5—"Time Limits/Maintenance Checks," Chapter 12—"Servicing," and Chapter 36—"Pneumatics" in the *Aircraft Maintenance Manual (AMM)*.

GENERAL

This section describes the extraction, control, and distribution of bleed air from the engines to the connecting components of systems that utilize bleed air and service air for temperature and/or pressure purposes.

This section provides description and maintenance information on the pneumatic distribution system components in the nacelle, pylon, and tail cone. This includes hardware required to duct the bleed air through the pylon into the tail cone, but does not include the engine inlet anti-ice system, the wing anti-ice system or the air-conditioning system.

Pneumatics Description

Airplane systems that utilize engine bleed air and service air are as follows:

- Air-conditioning, cabin pressurization, and cabin temperature control systems
- Wing leading edge anti-ice system
- Horizontal stabilizer deice boot system
- Engine inlet anti-ice system
- Cabin door primary seal
- Cabin door acoustic seal
- Throttle detent system
- Rudder bias system

Bleed air is extracted from the engine at all times when the engine is operating. Usage of the bleed air depends on the position of the control valve of individual systems using bleed air.

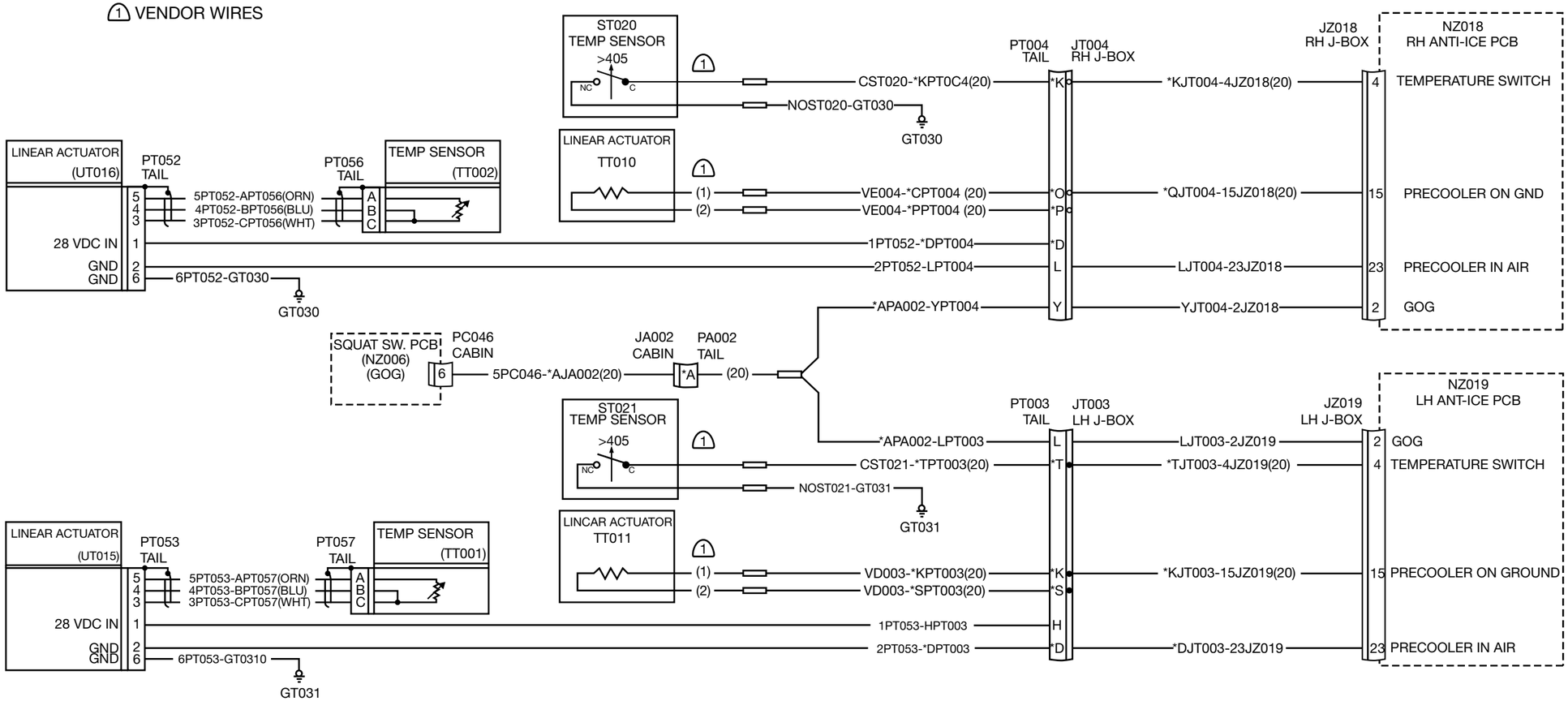

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Figure 36-1. Bleed Air Precooler Overview—Units 5001-5500

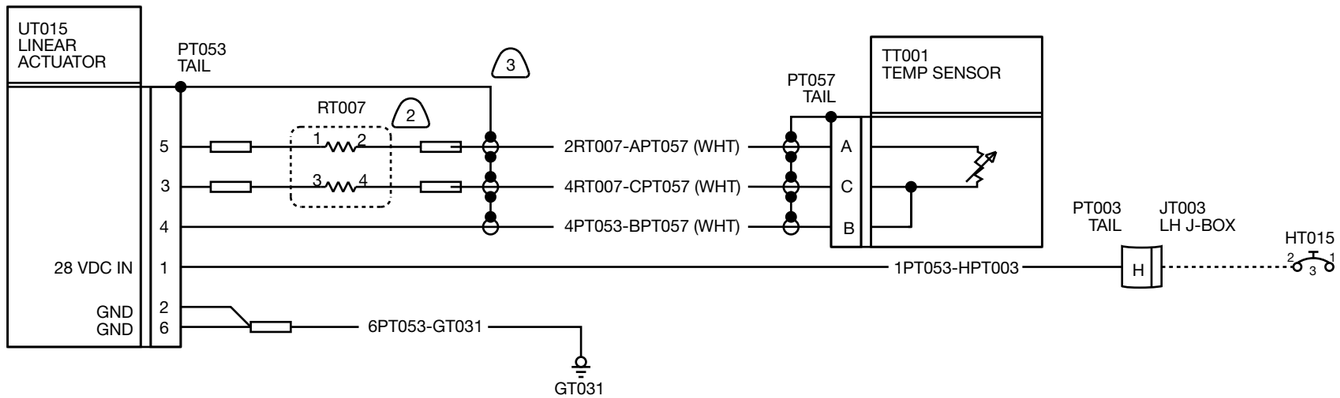


Figure 36-2. LH Bleed Air Precooler Overview—Units 5501-5616, 5618-6000 (Right Side Typical)

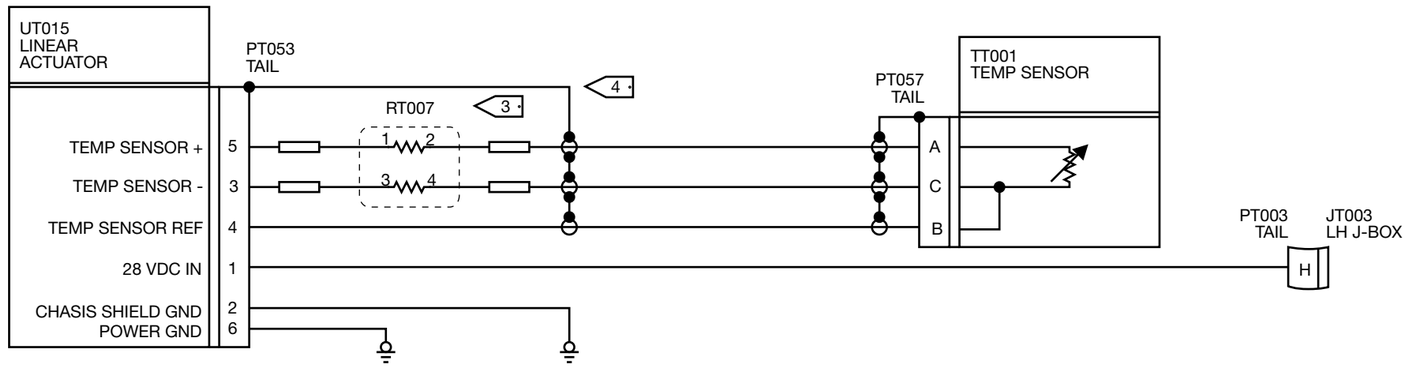


Figure 36-3. LH Bleed Air Precooler Overview—Units 5617, 6001 and Subsequent (Right Side Typical)

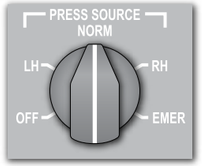
NOTES

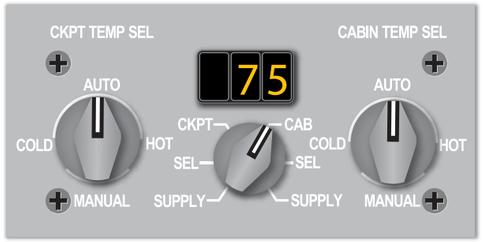
LEGEND

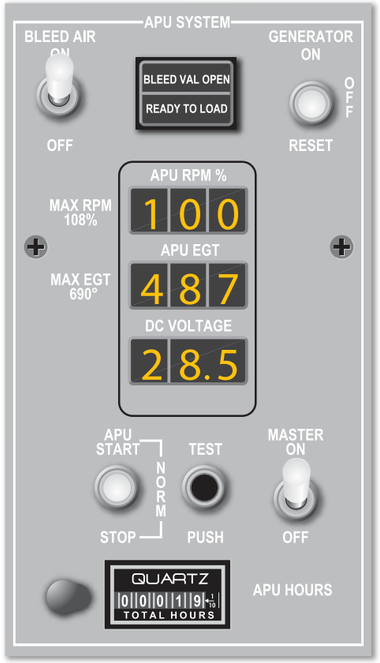
- COLD ACM (TURBINE) DISCHARGE AIR
- ENGINE BLEED AIR
- PRECOOLED AIR
- COMPRESSOR DISCHARGE AIR
- PRIMARY HEAT EXCHANGE AIR
- SECONDARY HEAT EXCHANGE AIR
- ACM EXHAUST
- APU BLEED AIR

CONDITION:

PRESS SOURCE—NORM
RH MASS FLOW VALVE—OPEN
LH MASS FLOW VALVE—OPEN







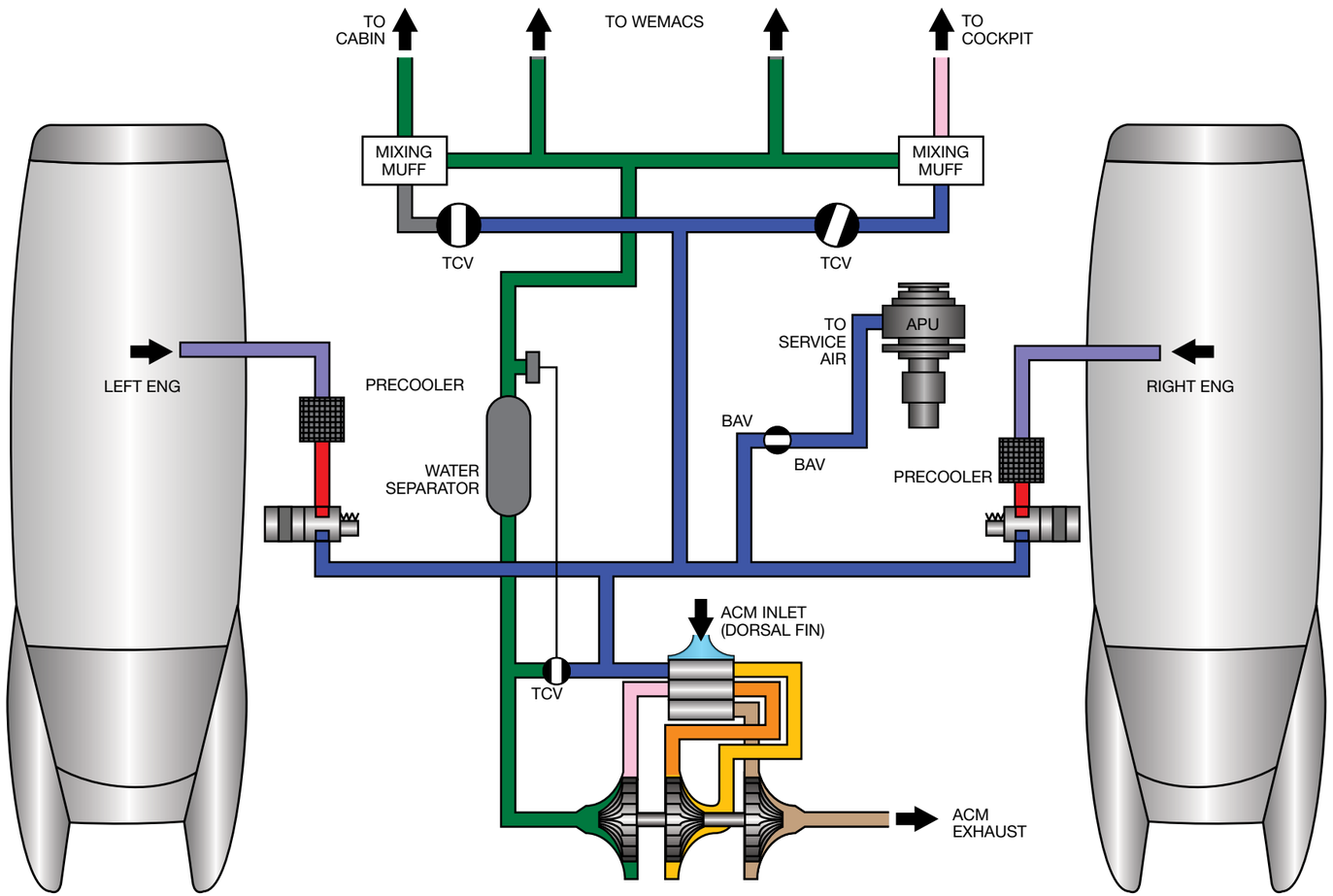


Figure 36-4. Bleed Air System—ON

NOTES

CHAPTER 38
WATER/WASTE

INTRODUCTION

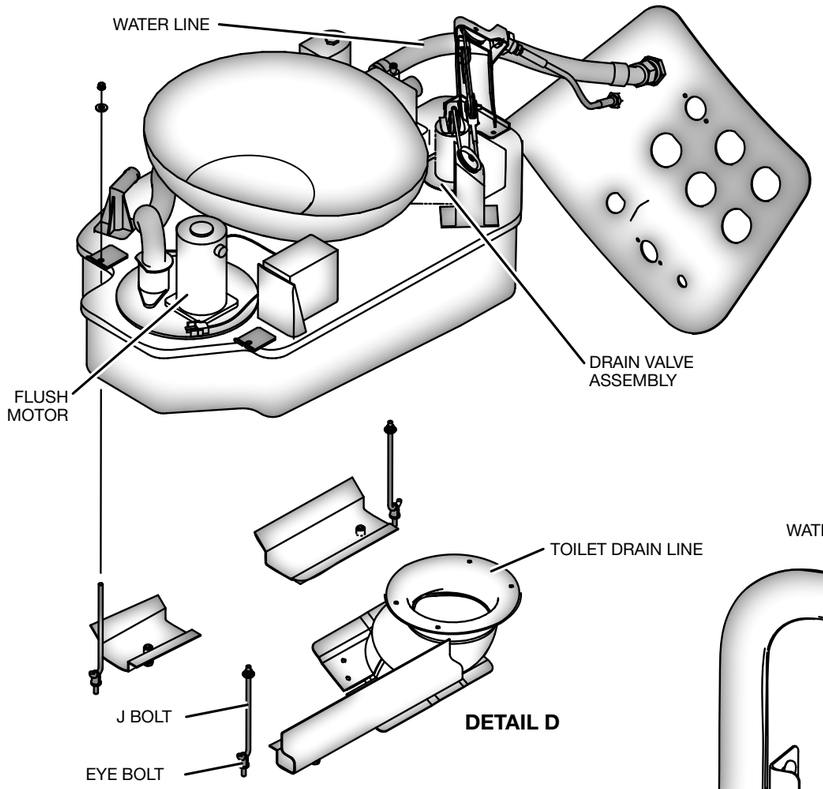
This chapter provides information on the water/waste system on the Citation XL/XLS/XLS+ aircraft. Information includes fixed units and components that store and deliver fresh water for use, and fixed components that store and furnish a means of removal of water and waste. Interior arrangement and options may cause variation in equipment description and installation.

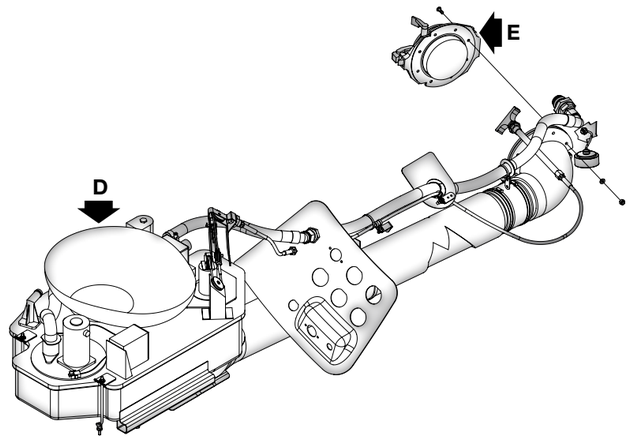
GENERAL

Potable water provisions are made available through the forward refreshment center in the left forward cabin compartment between FS 161.54 and FS 183.55 and the aft vanity/closet installation in the aft end of the cabin compartment at FS 370.60.

Wash water is available through a wash basin in the aft/vanity closet installation at the aft end of the cabin compartment at FS 370.60.

Waste disposal is accomplished with a flush-type toilet in the aft cabin on the left side of the aircraft. The flush toilet is self-contained to the extent that it requires only a 28 VDC electrical power source for operation.





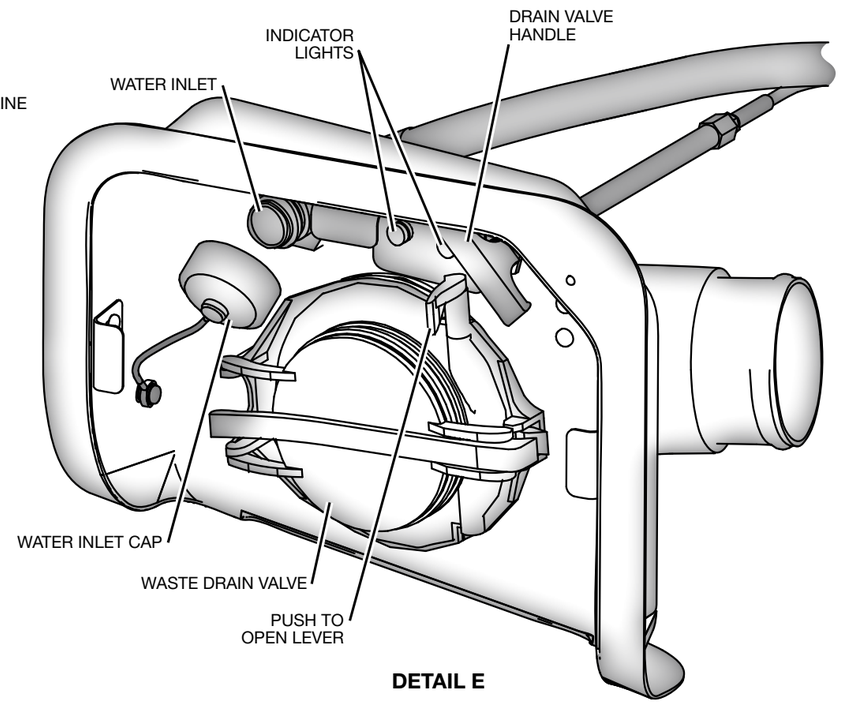


Figure 38-1. Externally Serviceable Toilet Assembly

NOTES

CHAPTER 45
CENTRAL MAINTENANCE SYSTEM

INTRODUCTION

This chapter describes the central maintenance system which is an integrated part of the Collins Pro Line 21 Avionics Suite on the XLS+ aircraft . Information is provided on the procedures to look at the maintenance messages available through the Collins Pro Line 21 system.

GENERAL

The Collins Pro Line 21 system messages are shown directly on the multifunction displays (MFDs). For information on access and use of the maintenance diagnostic computer (MDC) refer to “Collins Maintenance Diagnostic Computer System—Description and Operation” in the *Aircraft Maintenance Manual (AMM)*.

The Collins MDC system monitors many of the aircraft components to find failures, isolate faults, and give you historical fault data.

The Collins MDC system monitors the data that it receives from the left and right IOC-4110 input/output concentrator (IOC) Modules in the IAPS card cage. The diagnostic data is sent from the IOCs to the MDC on the left and right IOC-4 high-speed ARINC 429 buses.

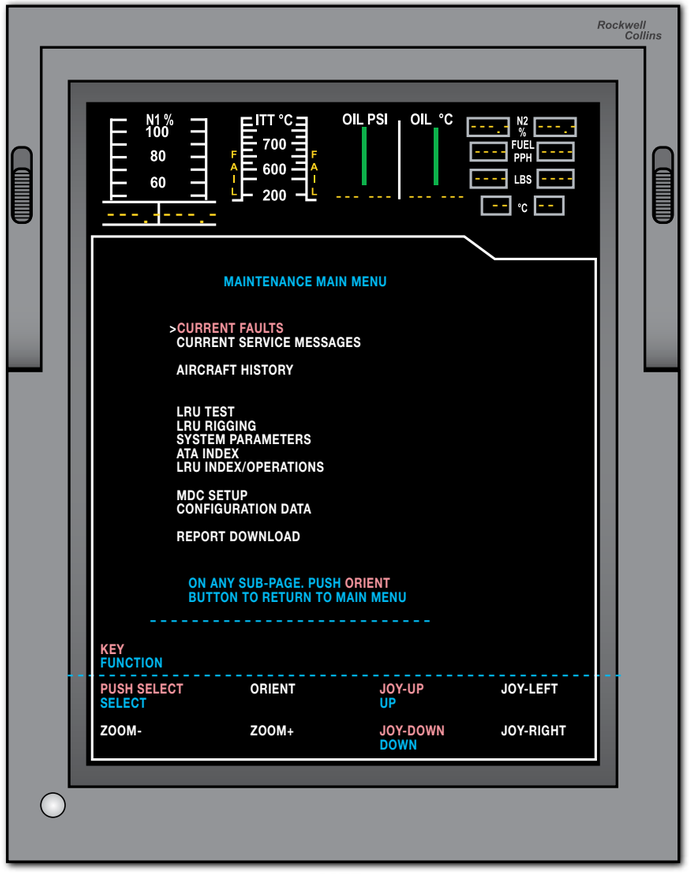
The MDC sends the diagnostic data through the MDC-2 high-speed ARINC 429 bus to be shown on the MFD (Figure 45-1). You can see this diagnostic data and download diagnostic reports from the file server unit (FSU).

The cursor control panel (CCP) gives you the controls to get access to the Maintenance Main Menu for the MDC.

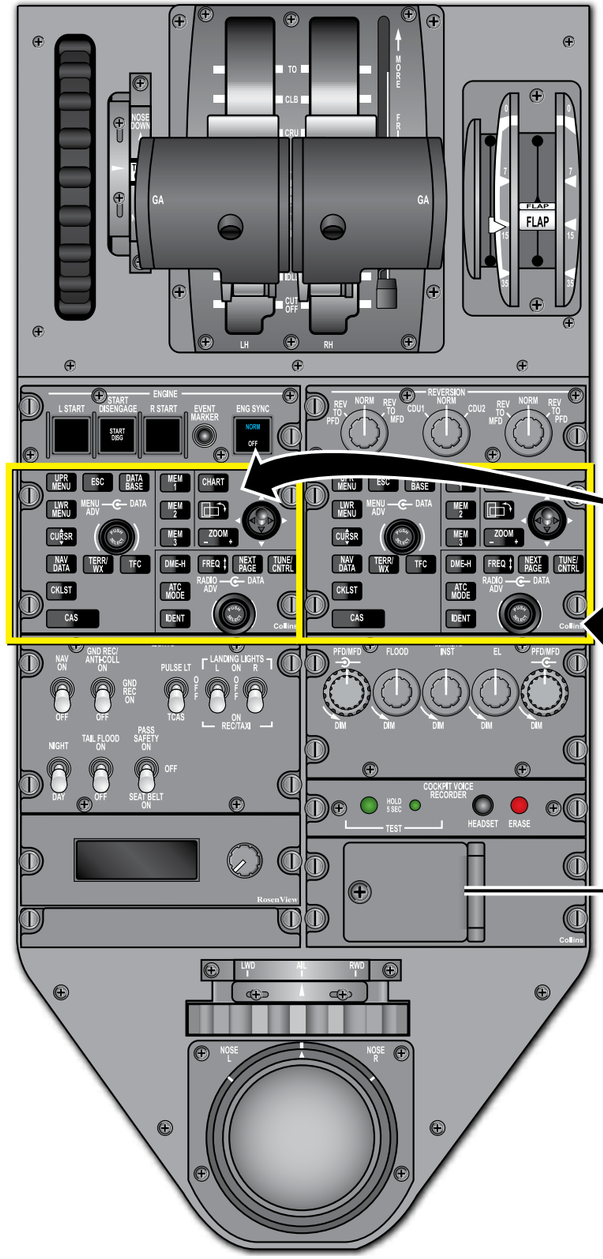
There is also a live data view capability that displays airframe PCB I/0 data to indicate current state, FADEC operating parameters, and switch/sensor values. The switch/sensor values include flap position as well as control surface trim position in support of auto rig functionality for FDR control surface position sensors.

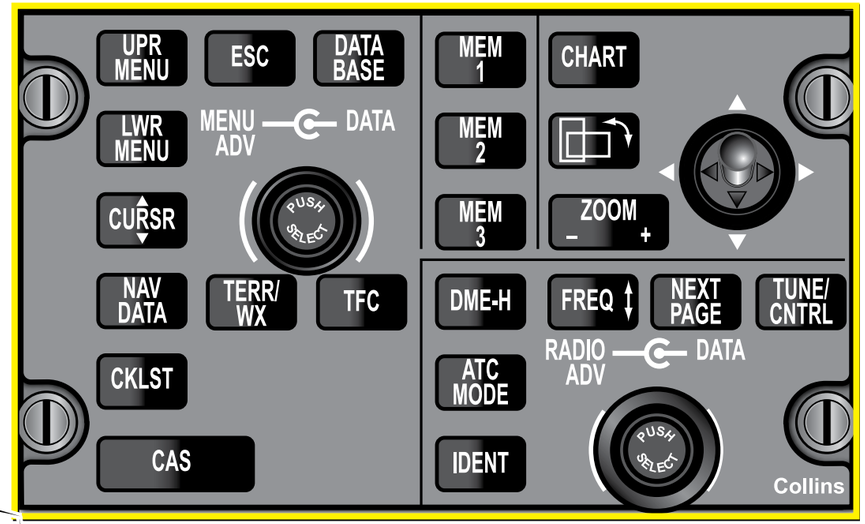
The DBU-5000 is a data loader and interface for the LRUs on the aircraft and is located in the pedestal below the right CCP (Figure 45-1). The DBU is used to load the FMS, MDC, FSU databases and software through the Ethernet port on the FSU-5010. Removable storage media (e.g. USB memory device) is used to transfer files to the LRUs.

The MDC monitors the data that it receives from the left and right IOC-4110 IOC modules in the IAPS card



MFD





CCP

Figure 45-1. Collins MDC System Components

NOTES

OPERATION

To access the maintenance menu apply external power to the aircraft and turn on aircraft power and the avionics. Allow approximately 5 minutes for the system to stabilize before proceeding.

Push the DATABASE button on the CCP followed by the UPR MENU or LWR MENU button on the CCP to show the DATABASE MENU (Figure 45-1). Turn the MENU ADV (outer) knob on the CCP to highlight the MAINTENANCE MAIN MENU. Push the PUSH SELECT (inner) button on the CCP to get access to the MAINTENANCE MAIN MENU page.

The MAINTENANCE MAIN MENU contains the following pages :

CURRENT FAULTS—Gives advanced diagnostics of the component with the fault. The information contained in the current faults page includes:

- DETAILED DIAGNOSTIC DATA—Displays active data words and status conditions, as well as the diagnostic words that caused the fault message to be recorded. The DATA USED TO DETERMINE MESSAGE display shows all the diagnostic words that were used in the MDC logic equation.
- The LRU DIAGNOSTIC DATA fields show the octal label and diagnostic word received from the effected LRU and a maximum of ten diagnostic words can be shown. The field shows dashed lines if the associated word is not received. Each diagnostic word contains useful information that may simplify troubleshooting. The diagnostic words can be shown in either binary or hexadecimal format.

CURRENT SERVICE MESSAGES—Shows events or conditions which may not be faults but could be of interest to maintenance.

AIRCRAFT HISTORY—Gives the fault history and flight leg summary that includes fault history, service message history, engine trend history, and flight leg summary.

LRU TEST—Provides discrete testing capability for individual LRUs.

LRU RIGGING—Accesses specific rigging information for selected LRU.

SYSTEM PARAMETERS—Shows maintenance or information aircraft system parameters on a real-time basis.

ATA INDEX—Shows a list of the ATA chapters for the LRUs on the aircraft.

LRU INDEX/OPERATIONS—List of aircraft LRUs.

MDC SETUP—Provides setup control of some MDC parameters.

Examples include the aircraft identification code and the aircraft clock, configuration control, and the file load function that allows files from a database, including user checklists, to be loaded from a disk.

CONFIGURATION DATA—Shows the configuration strapping unit configuration.

REPORT DOWNLOAD—Provides the ability to download MDC report files via the DBU.

There is also a separate flight control system (FCS) DIAGNOSTICS page that allows troubleshooting of autopilot and yaw damper failures. Access to the FCS DIAGNOSTICS page is obtained from the DATABASE MENU.

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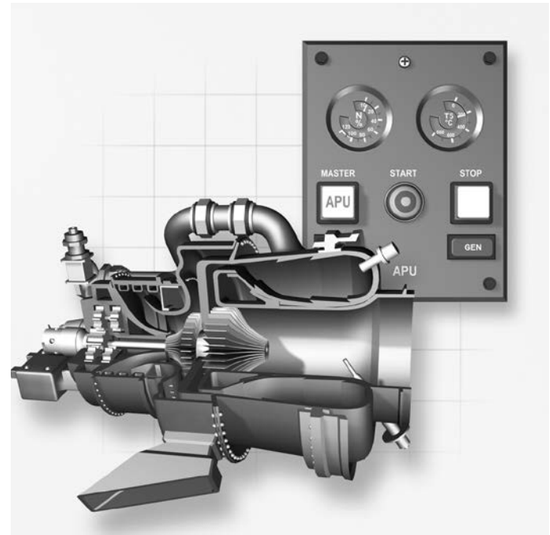
CHAPTER 49
AIRBORNE AUXILIARY POWER



INTRODUCTION

This chapter describes the onboard auxiliary power unit (APU) for the 560XL/XLS/XLS+, which generates to provide auxiliary bleed air and auxiliary electrical power. Information is provided for the major APU sections, major systems, fire detection and extinguishing. References for this chapter and further specific information can be found in Chapter 5—"Time Limits/Maintenance Checks," Chapter 12—"Servicing," and Chapter 49—"Airborne Auxiliary Power," of the *Aircraft Maintenance Manual (AMM)*.

GENERAL

The APU is an AlliedSignal Aerospace Inc./Honeywell model RE100 (XL). It is in a containment box in the tail cone of the aircraft. The air inlet for the APU is on the upper right corner of the access door. Exhaust exits through a vent on the right side of the tail cone, forward and slightly below the horizontal stabilizer leading edge. It is a fully-automatic, constant-speed, gas turbine engine, that provides both electrical and pneumatic (bleed air) power while on the ground or in the air.

The APU is certified for ground and in-flight use. Maximum altitude is 20,000 feet for starting and 30,000 feet during operation. An amber APU ON crew alerting system (CAS) message appears if the APU is on above 30,000 feet.

Subsystems include:

- Lubrication
- Fuel
- Ignition
- Control/indicating
- Electrical
- Pneumatics

A fire detection and extinguishing system (attached to the APU) is monitored and controlled in the cockpit. Electrical power is supplied (using shaft power) by the auxiliary generator mounted to the accessory gearbox.

Pneumatic and shaft power may be supplied simultaneously or independently. When both types of power are demanded, the shaft power has priority. Selector switches in the flight crew compartment initiate all load requirements. APU is said to be at idle when running at 100% speed with no power being extracted. When loads are exerted on APU, fuel flow increases maintaining constant speed of 100%.

Protective devices within the APU engine control and monitor lubricating oil pressure and temperature, turbine exhaust gas temperature, powerplant overspeed and underspeed, and sequence failure.

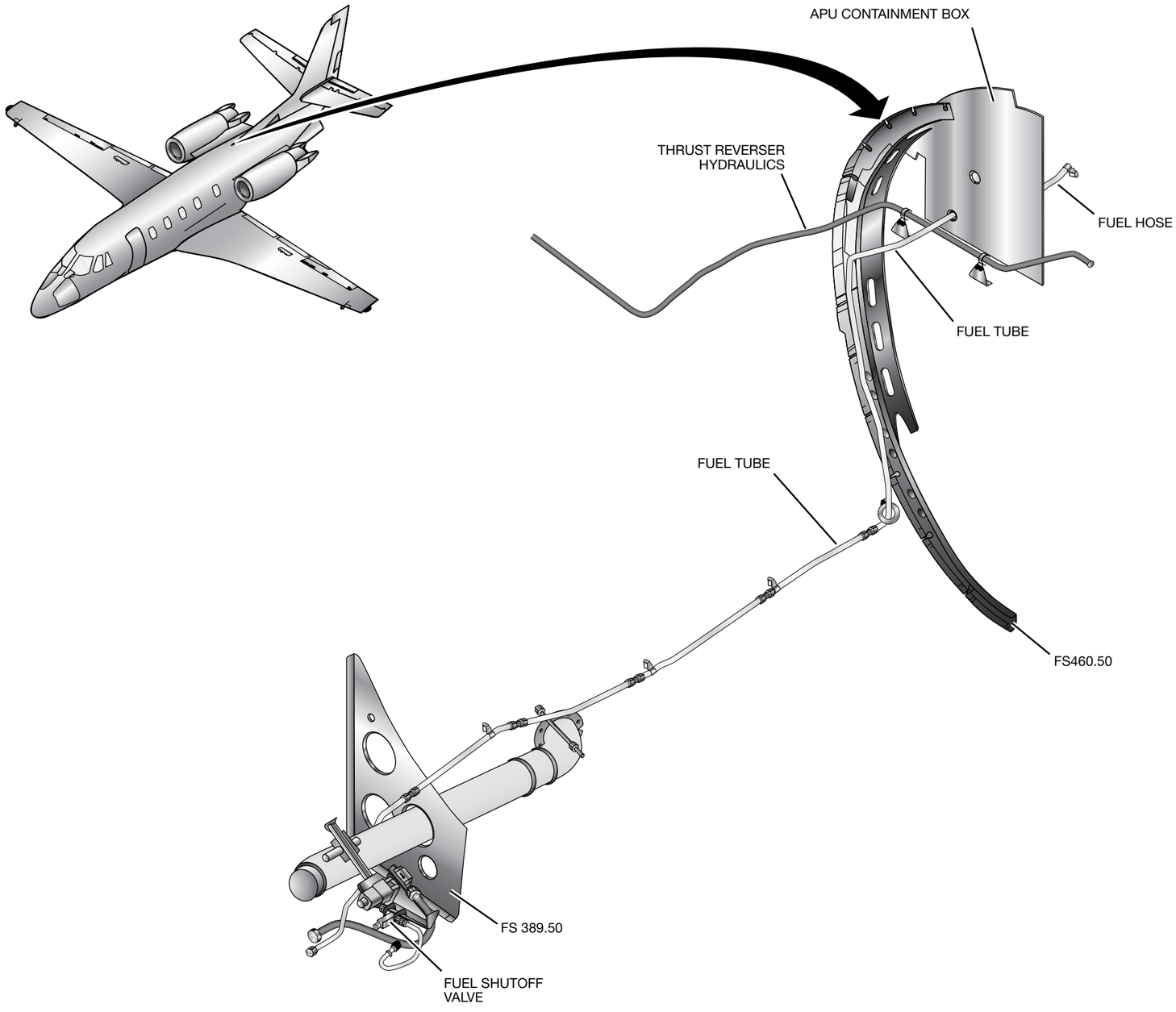


Figure 49-1. APU Fuel System Overview

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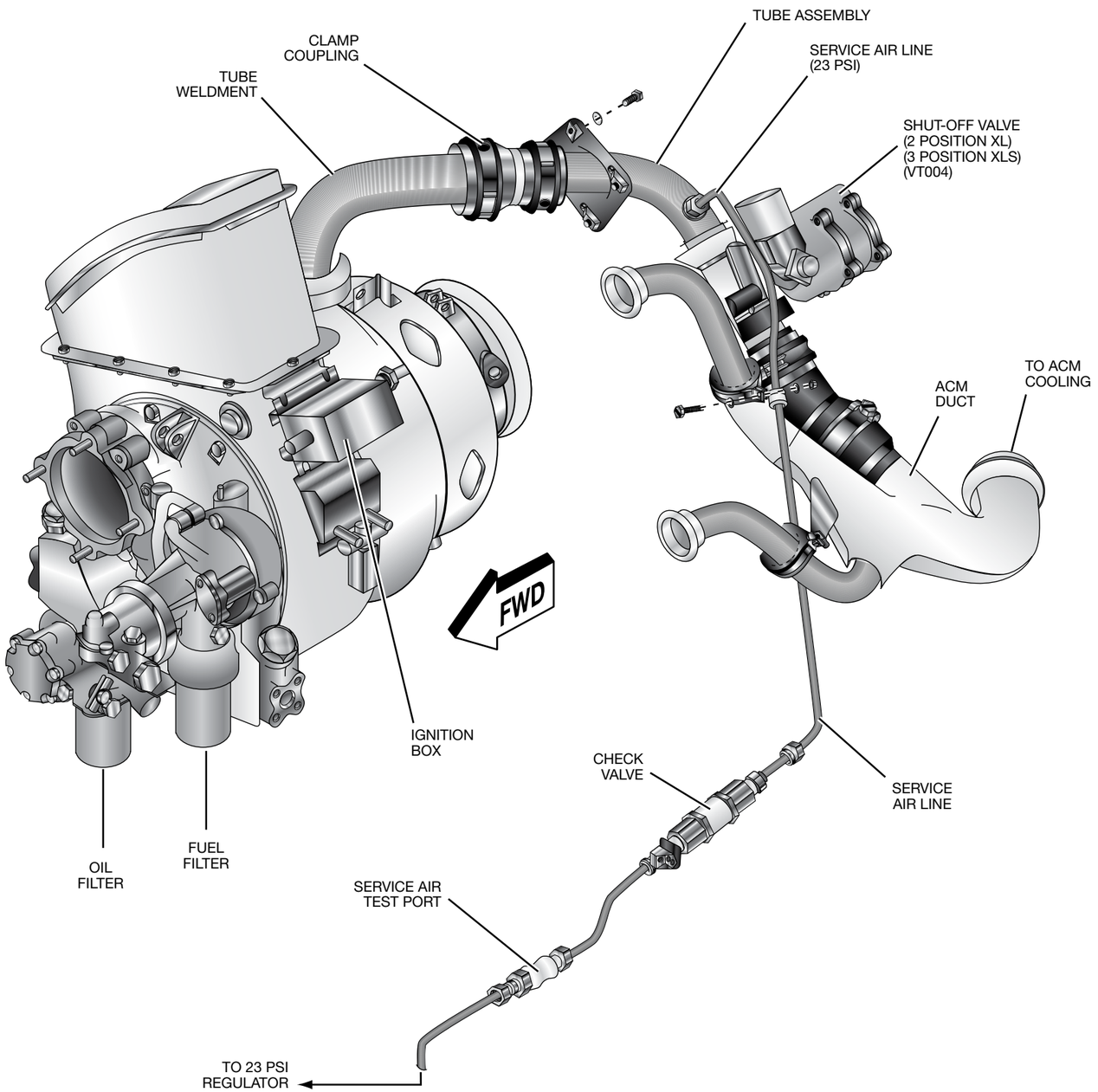

Figure 49-2. APU Pneumatic System Overview

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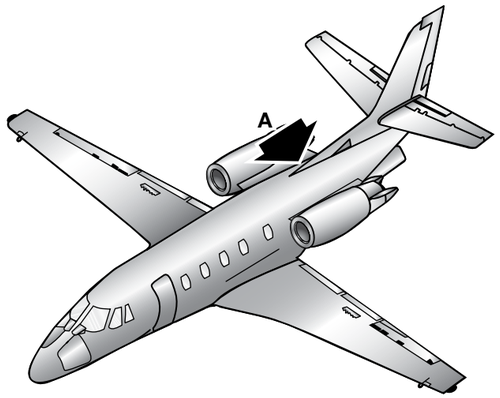
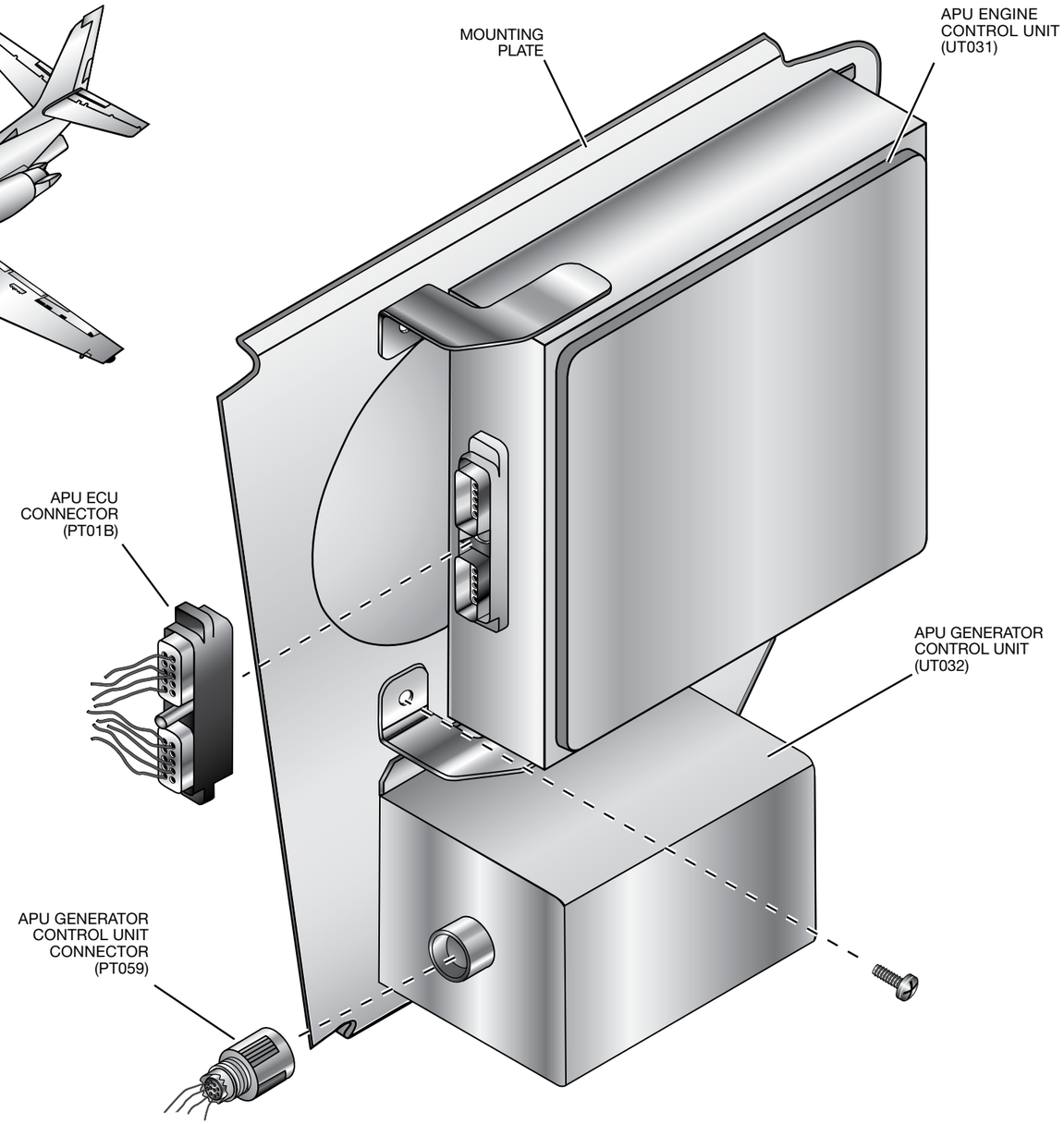


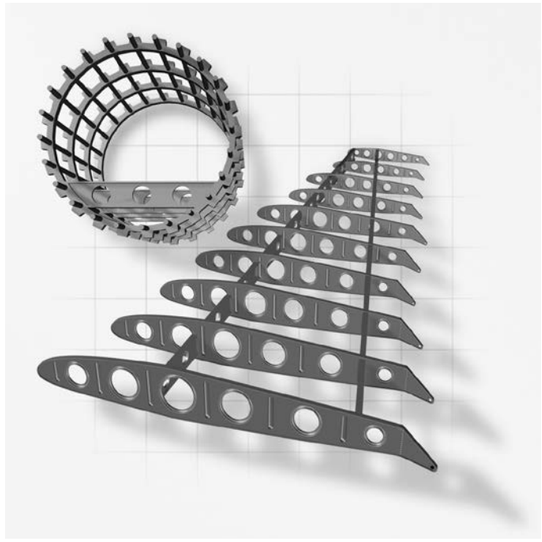


DETAIL A

Figure 49-3. Electronic Control Unit (ECU) and Generator Control Unit (GCU) Overview

NOTES

CHAPTER 51-57 STRUCTURES



INTRODUCTION

This chapter provides a description of the aircraft structures, doors, fuselage, nacelles, pylons, stabilizers, windows, and wings on the Citation XL/XLS/XLS+ aircraft.

GENERAL

This chapter is divided into seven sections briefly described below. For locating subjects within the sections, refer to the Table of Contents at the beginning of this chapter.

This chapter provides an overall description of the nose, cabin, fuselage, tail cone, empennage, and wing.

The Doors section provides a general description of the cabin entry door, emergency exit door, baggage door, nose compartment and service doors, auxiliary power unit door, and the door warning system.

The Fuselage section describes the structural compartments for equipment, flight crew, passengers, and baggage. Included are the main frame, nose radome, plates/ skin, auxiliary structure, and aerodynamic fairings.

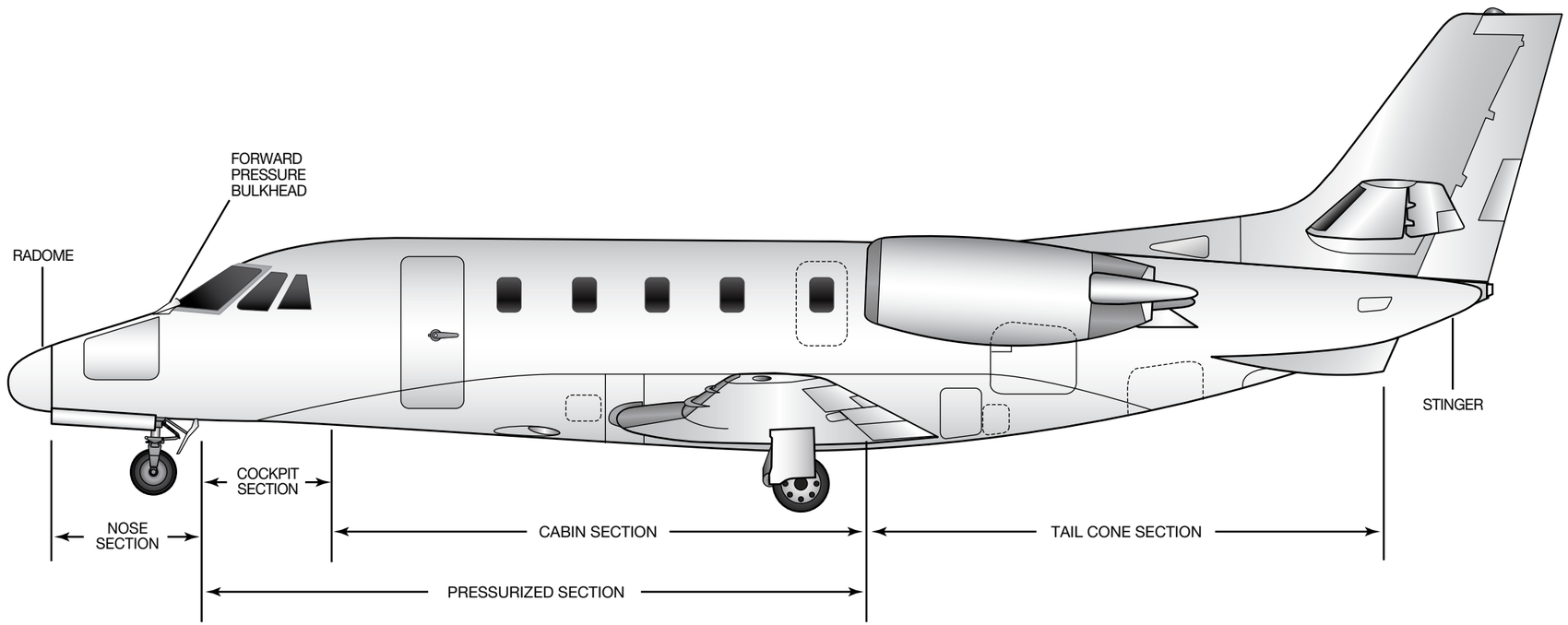


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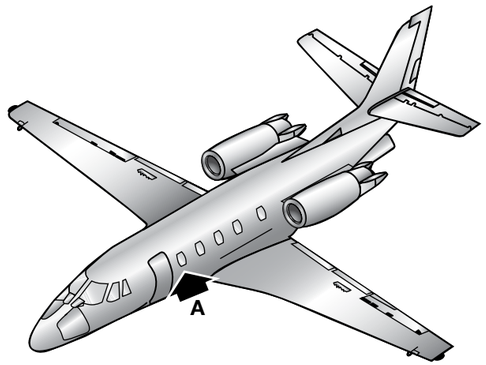
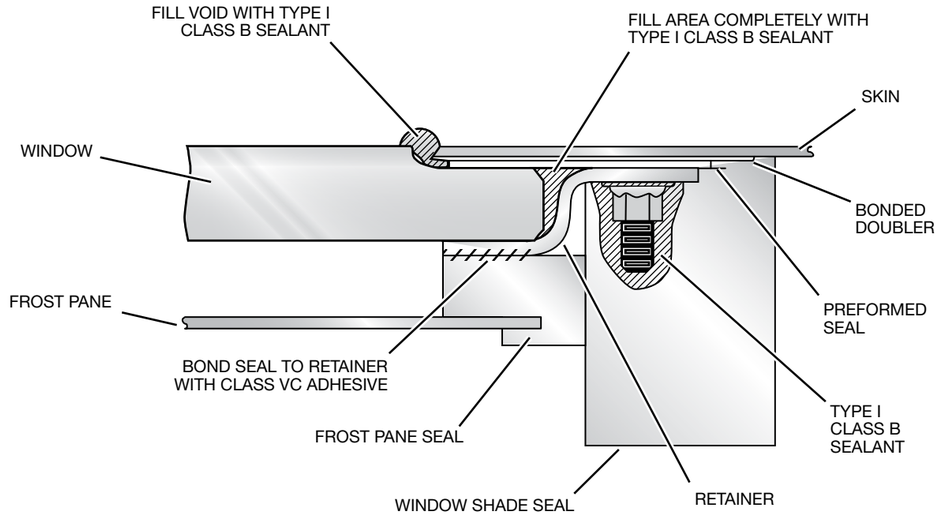
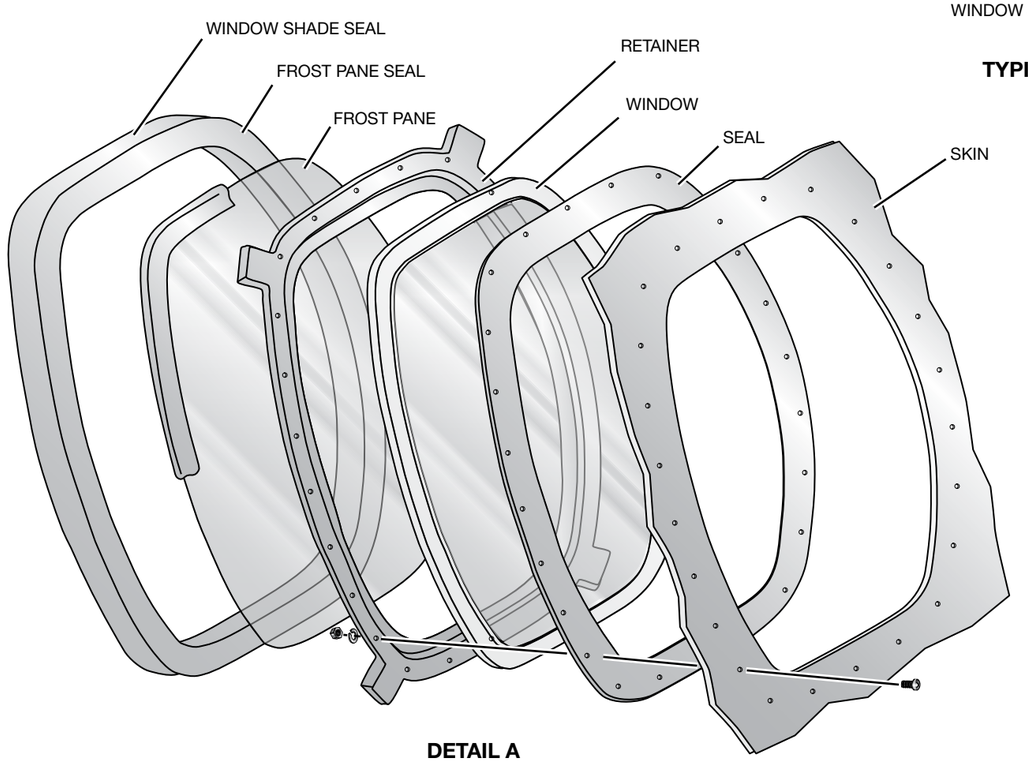
Figure 51-1. Fuselage Sections





TYPICAL CROSS SECTION



DETAIL A

Figure 51-2. Cabin Windows

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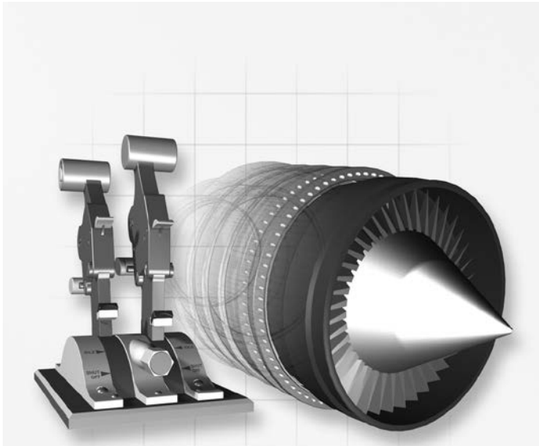
CHAPTER 71-80 POWERPLANT



INTRODUCTION

This chapter describes powerplants installed on the Citation XL/XLS. Included are descriptions and operation of the major sections, secondary air systems, engine anti-ice system, interstage turbine temperature (ITT) indicating system, oil system, ignition system, fuel system, instrument system, synchronizing system, and thrust reversers. General maintenance considerations are included with an introduction to functional checks for fault analysis. Powerplant limitations are listed. The values listed are intended for training and illustrative purposes. References for this chapter and further specific information can be found in Chapter 5—"Time Limits/Maintenance Checks," Chapter 12—"Servicing," Chapter 54—"Nacelles/Pylons," Chapter 71—"Powerplant," Chapter 73—"Engine Fuel Control," Chapter 74—"Ignition," Chapter 76—"Engine Controls," Chapter 77—"Engine Indicating," Chapter 78—"Exhaust," and Chapter 79—"Oil" of the Citation XL/XLS *Aircraft Maintenance Manual (AMM)*.

GENERAL

The 560XL series of aircraft are powered by two the Pratt and Whitney 545 series engines. The PW545 is a low-noise, light-weight, high-bypass ratio, twinspool turbofan engine.

The PW545A engine is installed on aircraft -5001 through 5500 and has a maximum rated thrust on an 83°F (28.3°C) day at sea level of 3,804 pounds (1,725 kg).

The PW545B engine is installed on aircraft -5501 through 6000 and has a maximum rated thrust on an 83°F (28.3°C) day at sea level for each engine is 4,119 pounds (1,794 kg).

The PW545C engine is installed on aircraft -6001 and subsequent and the maximum rated thrust on an 77°F (25°C) day at sea level for each engine is 4,119 pounds (1,868 kg).

Sixty percent of the thrust produced at sea level is from the bypass air and 40% is from the core airflow. Only 40% of the thrust produced at 45,000 feet is from bypass air, and then 60% is from the core airflow.

Overall dimensions of the PW545 are as follows:

- Diameter 32.0 in. (81.3 cm)
- Length 68.6 in. (174.2 cm)
- Inlet diameter 27.3 in. (69.3 cm)

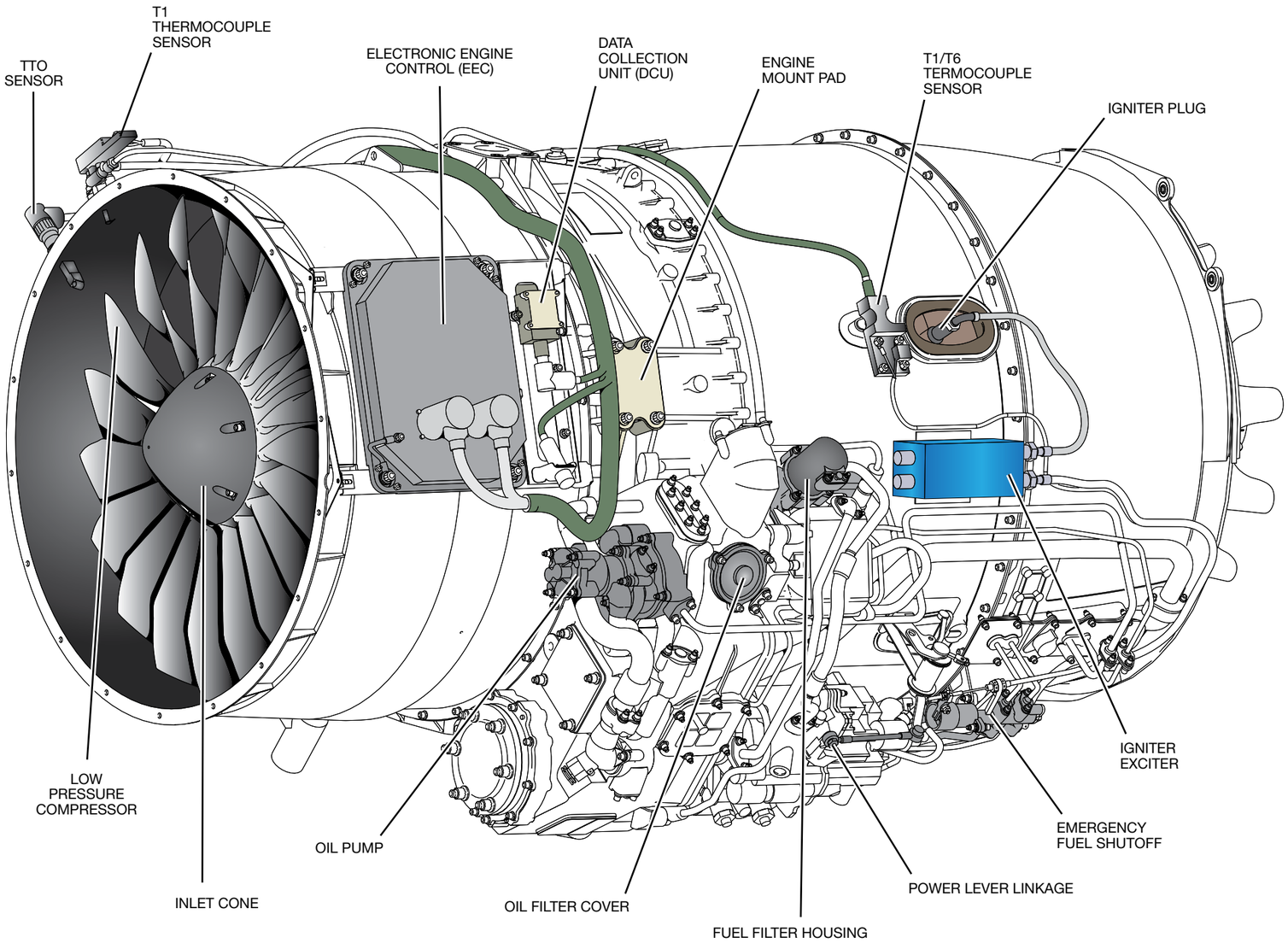


Figure 71-1. PW545 A/B Engine (Sheet 1 of 2)

NOTES

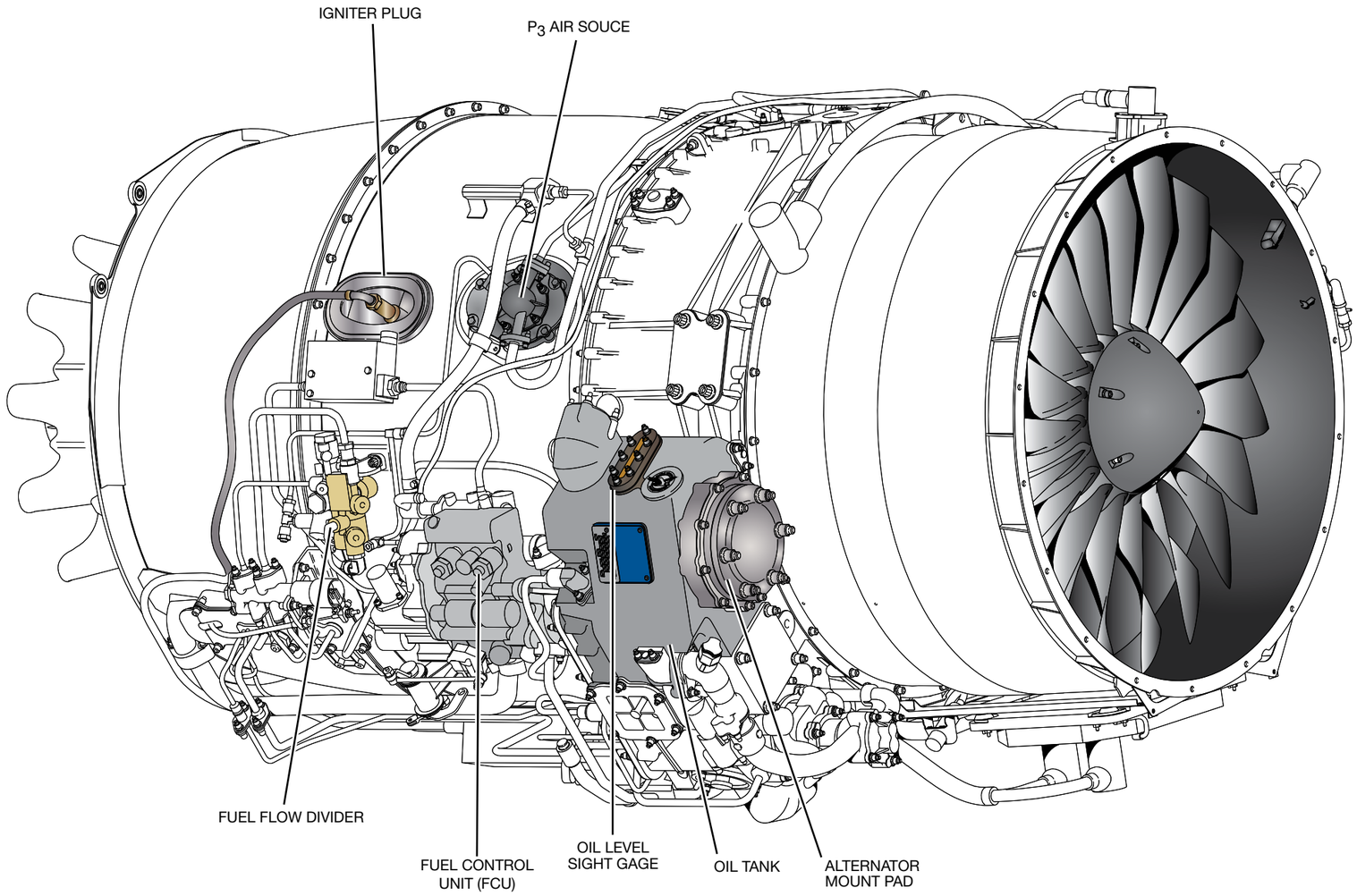


Figure 71-1. PW545 A/B Engine (Sheet 2 of 2)

NOTES

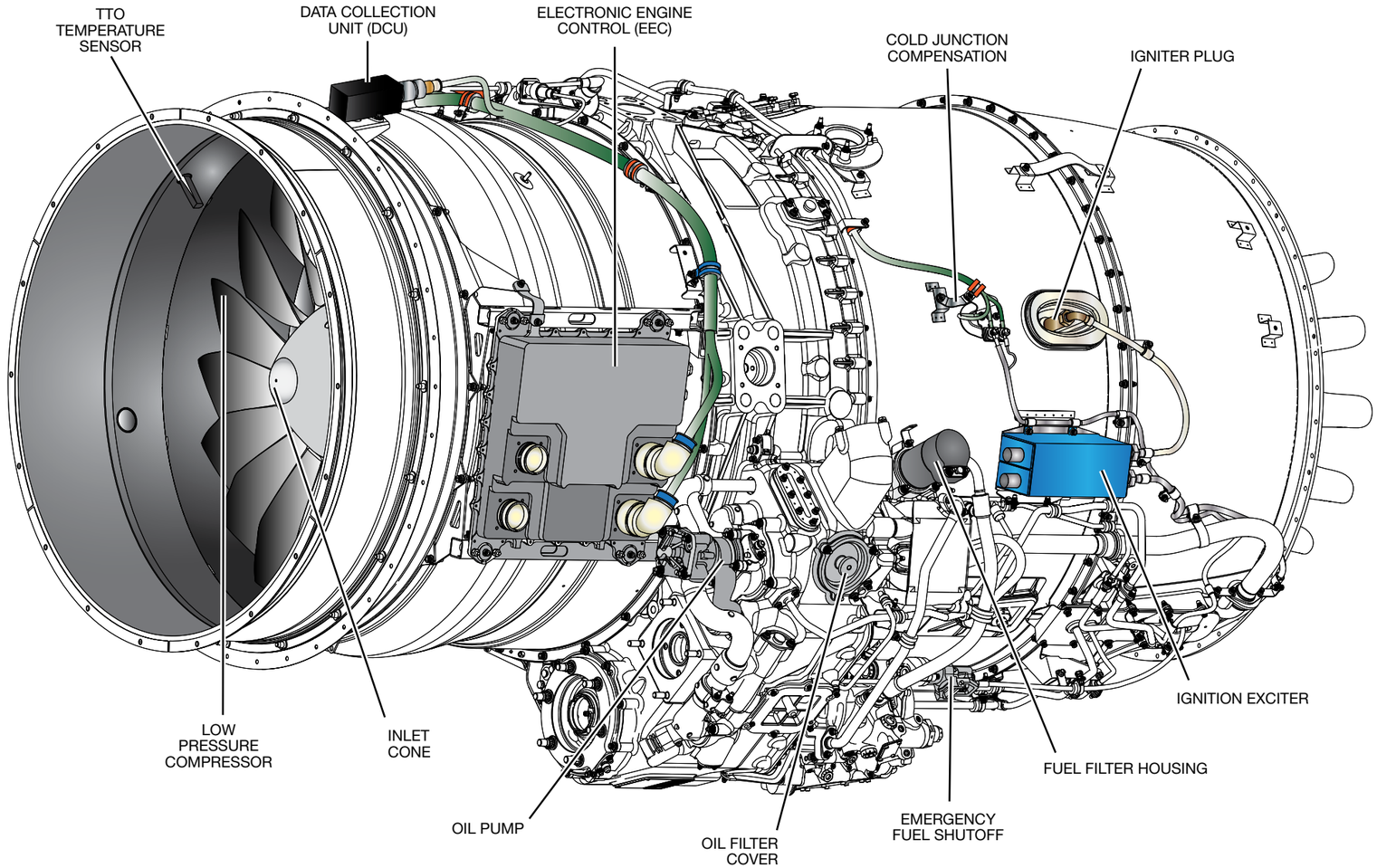


Figure 71-2. PW545C Engine (Sheet 1 of 2)

NOTES

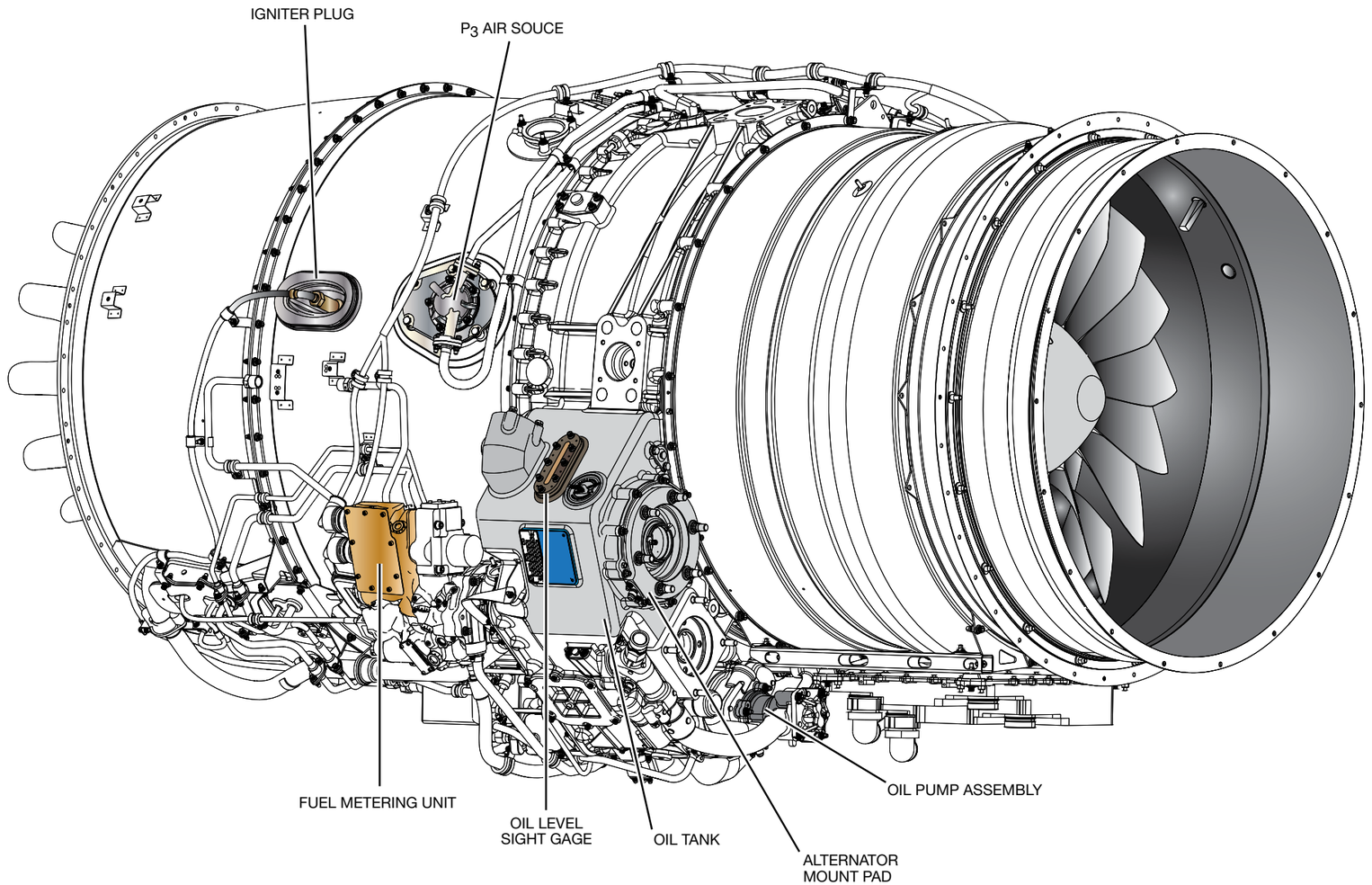


Figure 71-2. PW545C Engine (Sheet 2 of 2)

NOTES

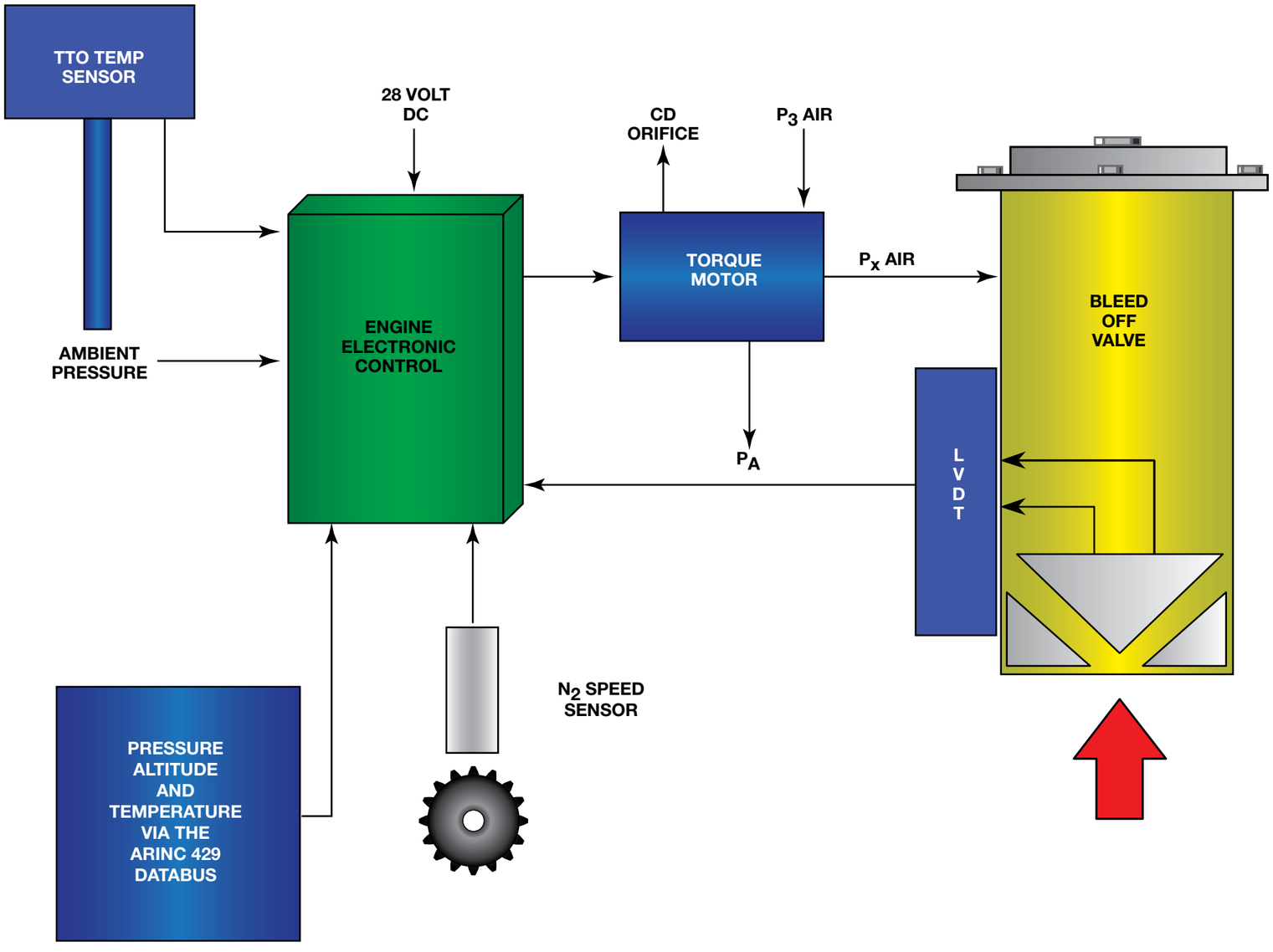


Figure 71-3. Bleed Valve Control Schematic

NOTES

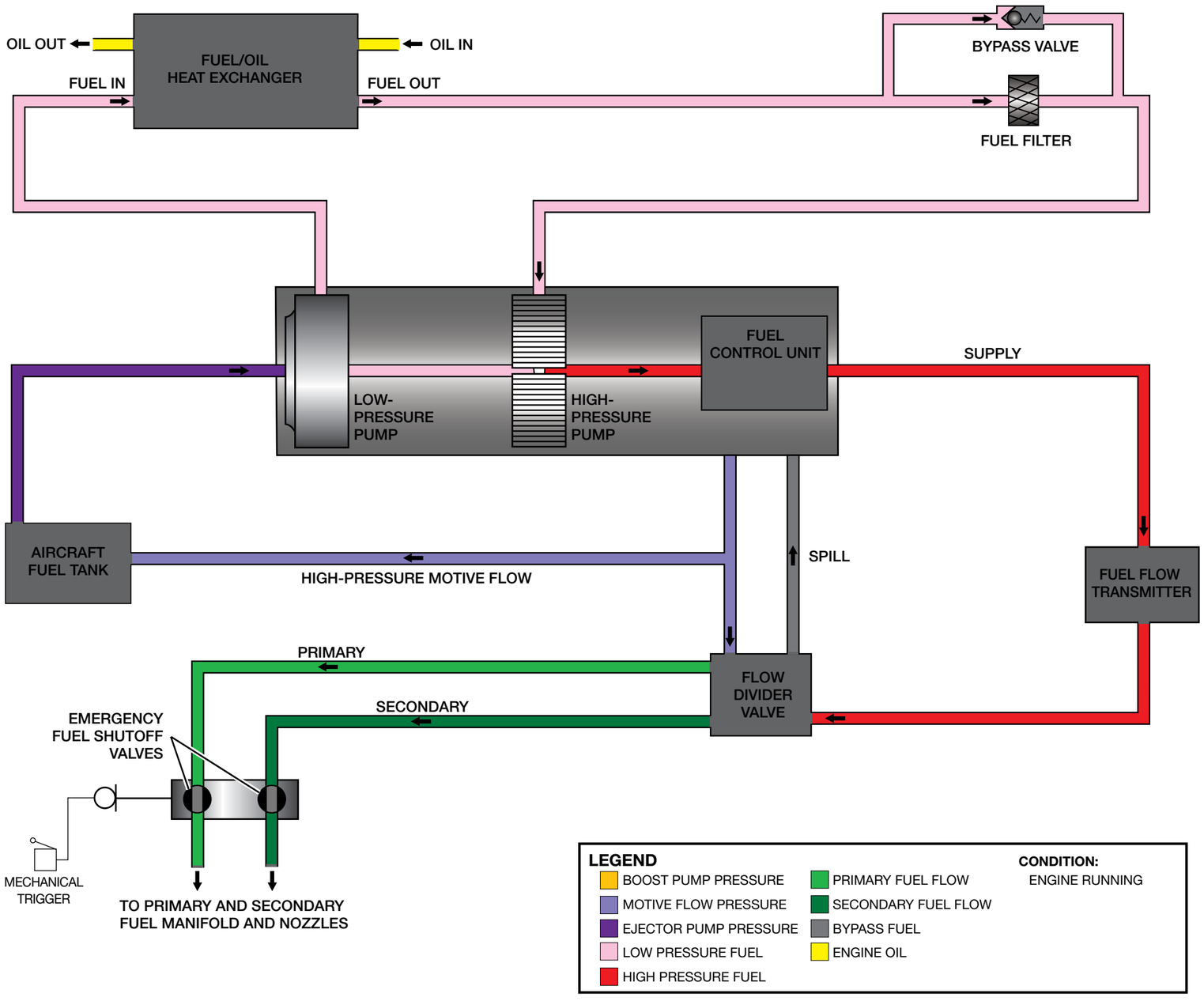


Figure 71-4. Engine Fuel System (545A/B)

NOTES

71-80

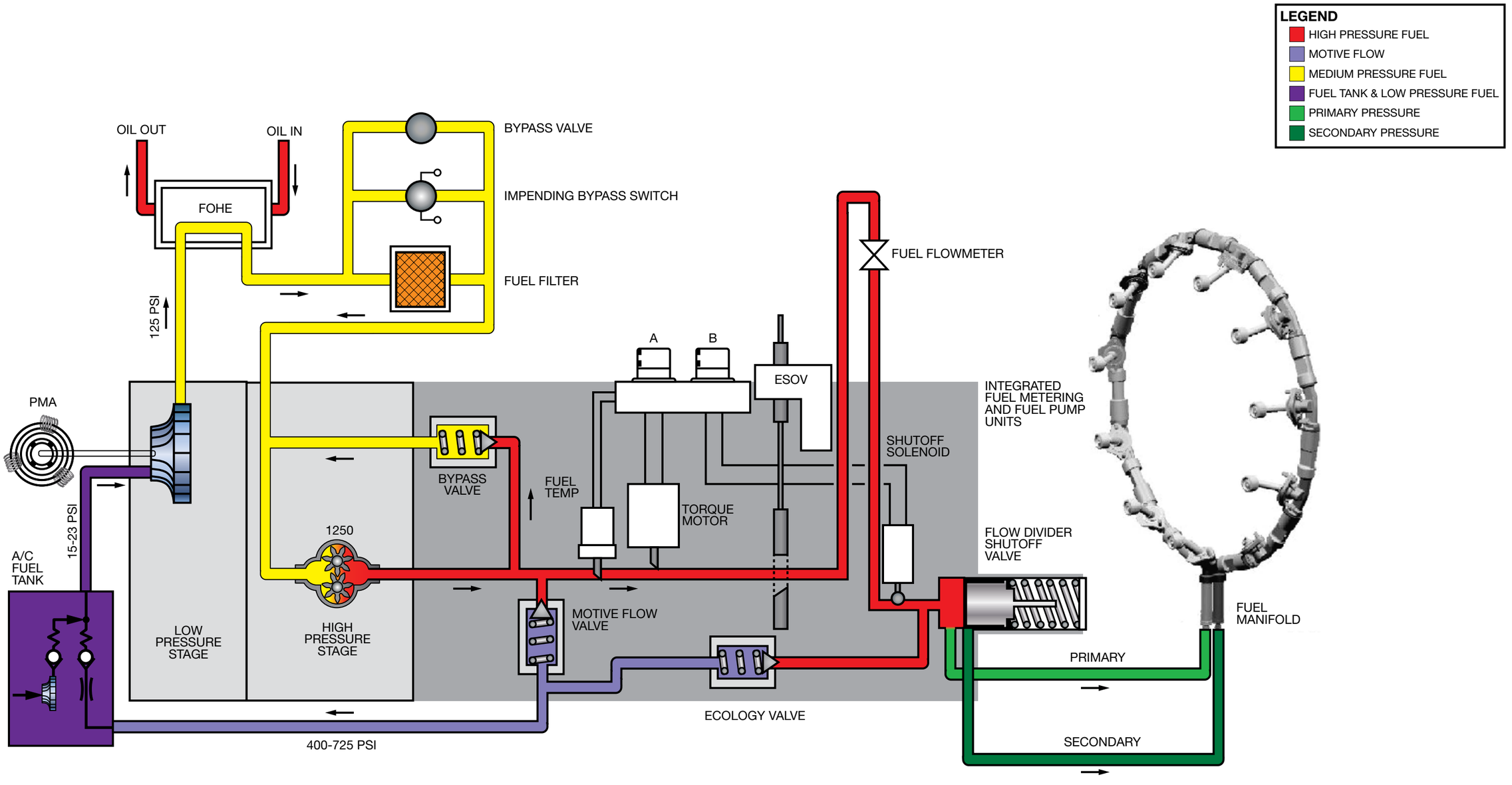
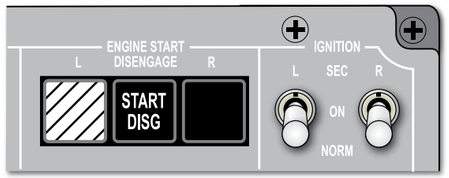


Figure 71-5. Engine Fuel System Overview (545C)

NOTES

Figure 71-6. Ignition (Sheet 1 of 4)

NOTES



LEGEND
- POWER
- GROUND

CONDITION:
START SWITCH—PRESSED
THROTTLE—OUT OF CUTOFF
IGNITION—NORMAL

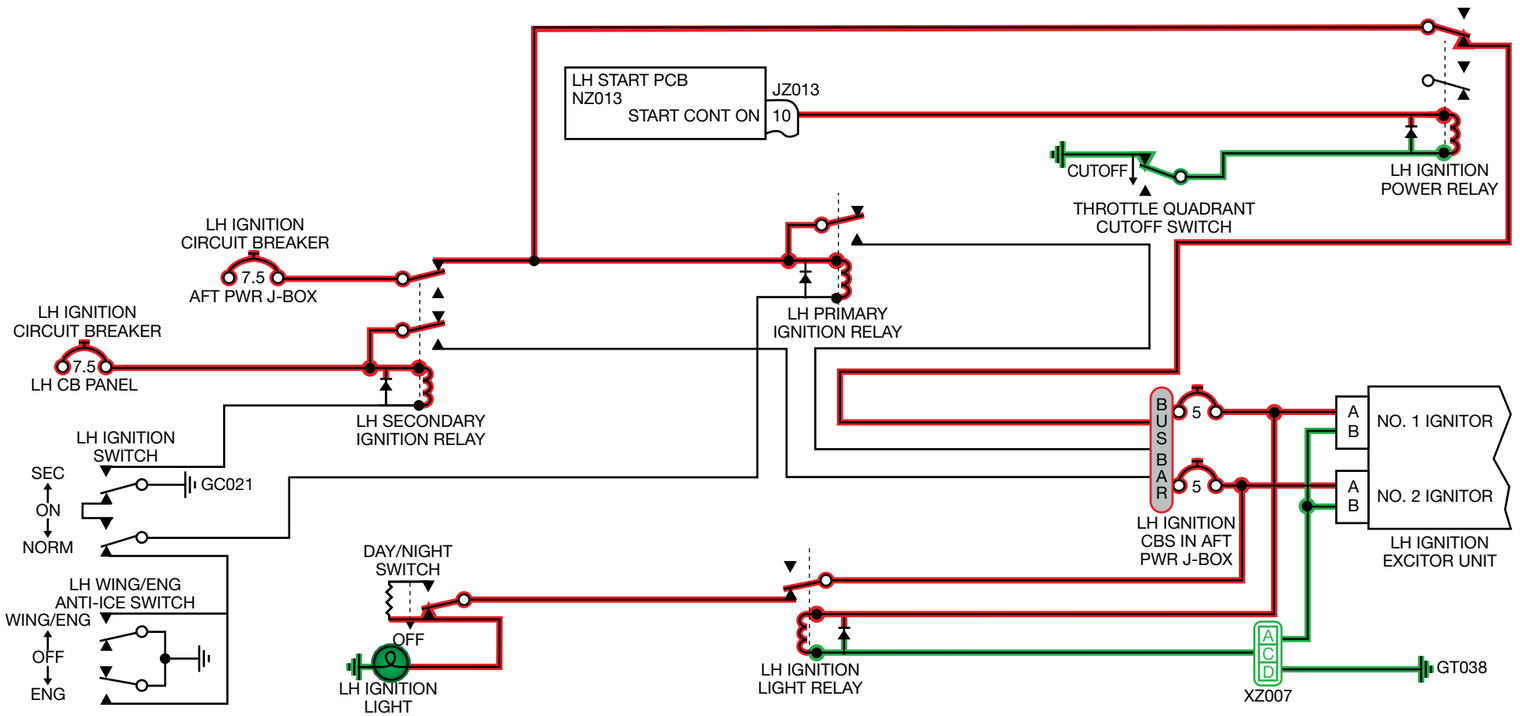


Figure 71-6. Ignition (Sheet 2 of 4)

NOTES

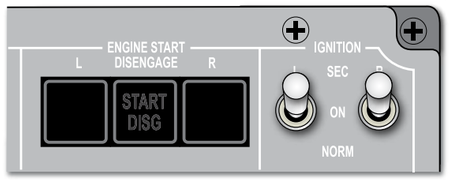
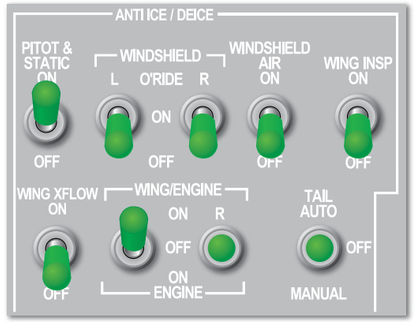


Figure 71-6. Ignition (Sheet 3 of 4)

71-80

NOTES



LEGEND

POWER

GROUND

CONDITION:

WING/ENGINE ANTI-ICE SELECTED—ON

IGNITION—NORMAL

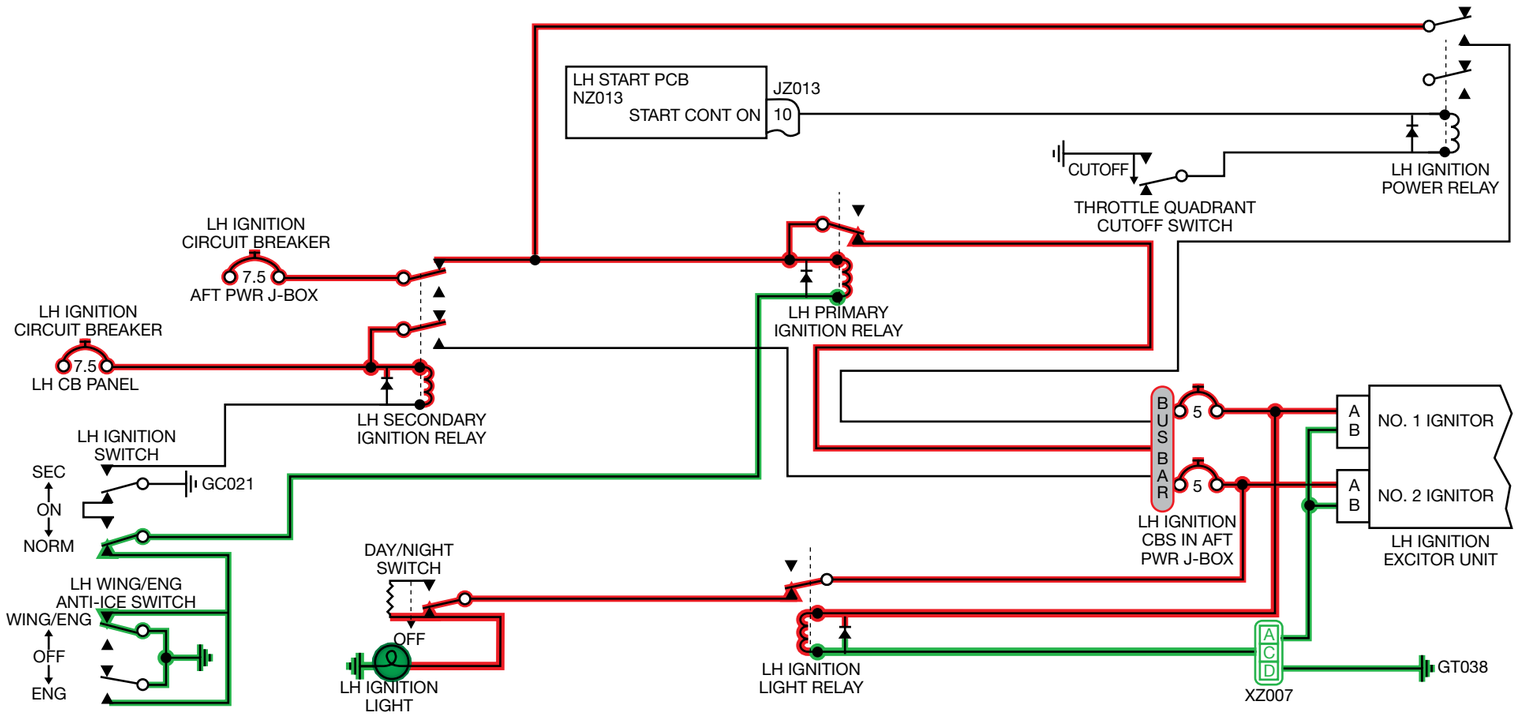


Figure 71-6. Ignition (Sheet 4 of 4)

NOTES

71-80

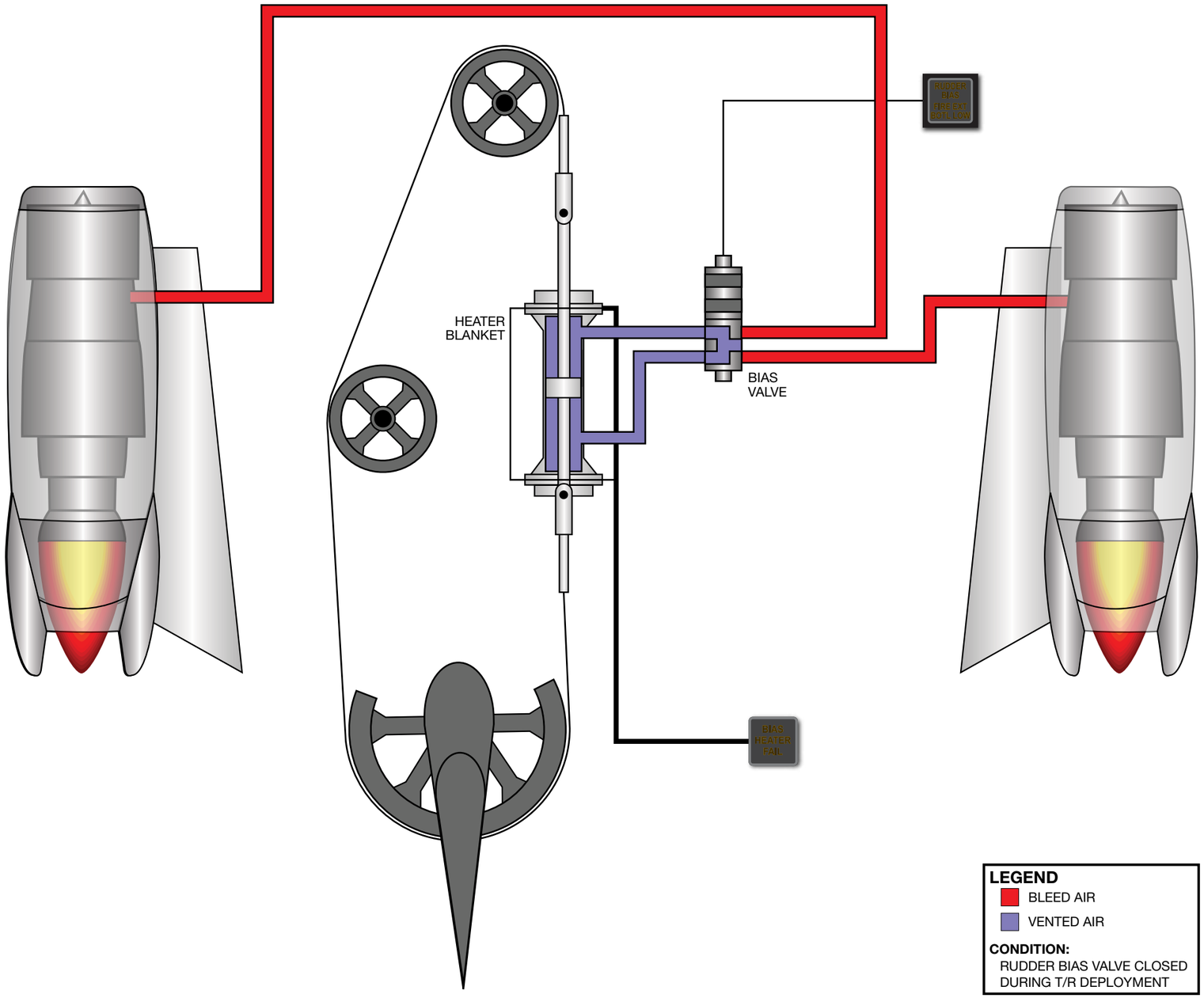
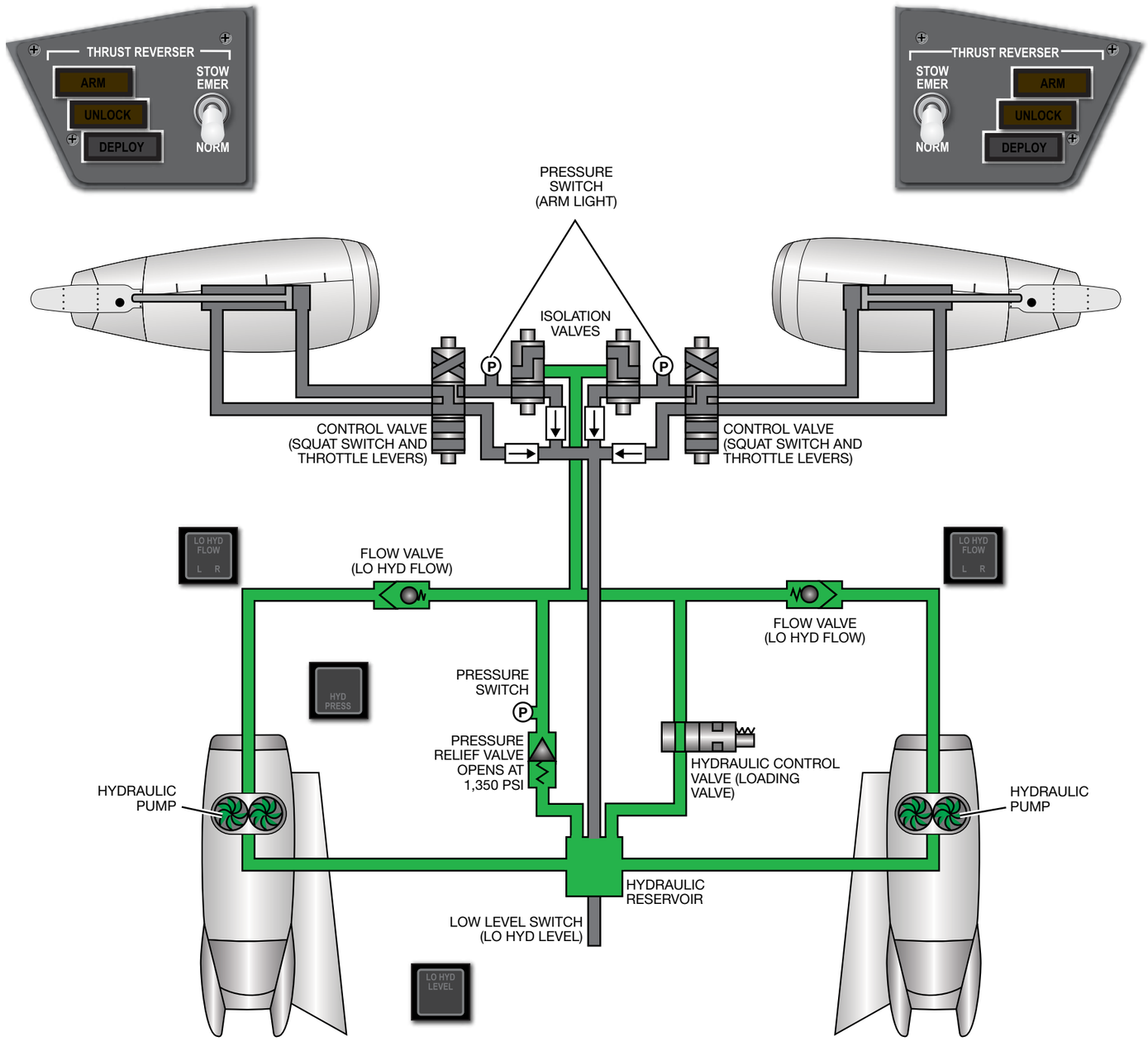


Figure 71-7. Rudder Bias and Thrust Reversers

NOTES

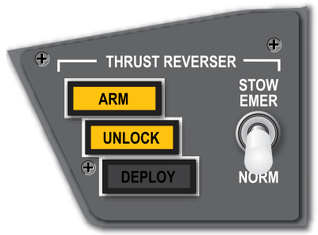


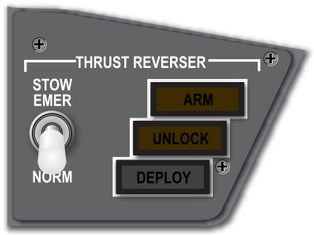
LEGEND
- LOW HYDRAULIC PRESSURE
- HIGHT HYDRAULIC SUPPLY PRESSURE
- RETURN PRESSURE

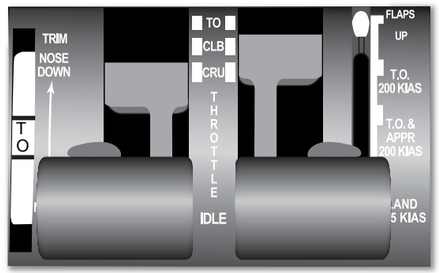
CONDITION:
THRUST REVERSER S STOWED

Figure 71-8. Left Thrust Reversers—Normal Stow

NOTES







LEGEND
- LOW HYDRAULIC PRESSURE
- HIGHT HYDRAULIC SUPPLY PRESSURE
- RETURN PRESSURE

CONDITION:
LH THRUST REVERSER ARMED & UNLOCKED

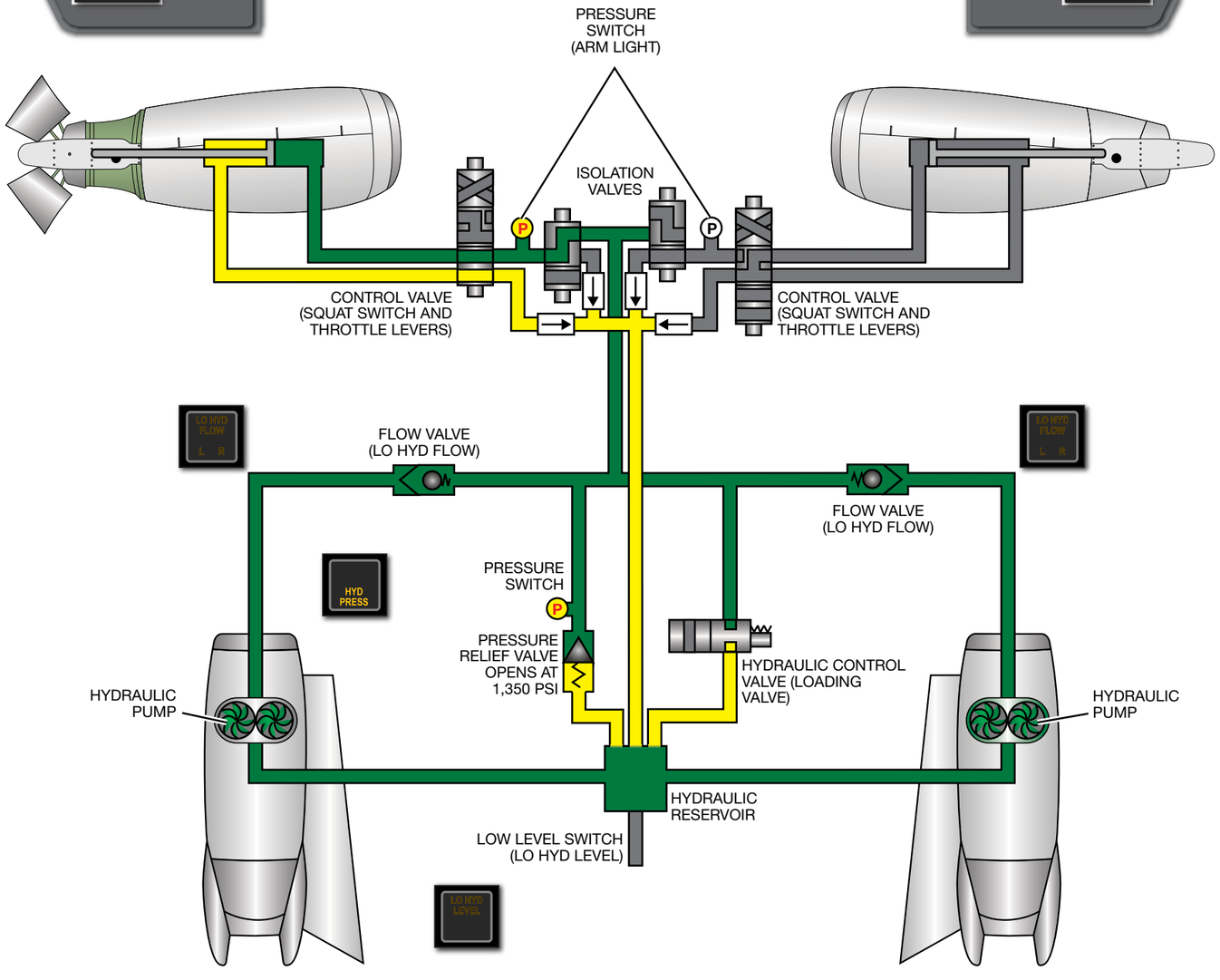
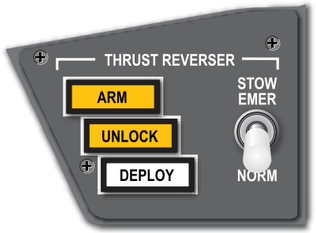
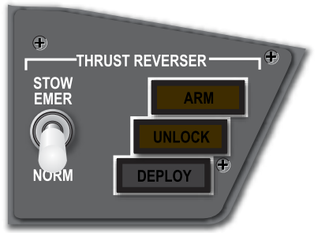
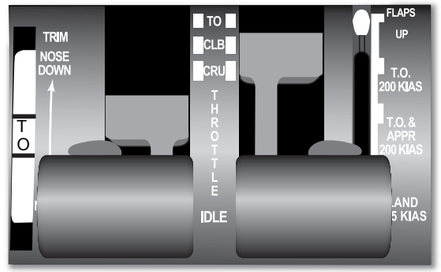


Figure 71-9. Left Thrust Reverser—Armed and Unlocked

NOTES







LEGEND
- LOW HYDRAULIC PRESSURE
- HIGHT HYDRAULIC SUPPLY PRESSURE
- RETURN PRESSURE

CONDITION:
LH THRUST REVERSER ARMED & UNLOCKED
LH THRUST REVERSER DEPLOYED

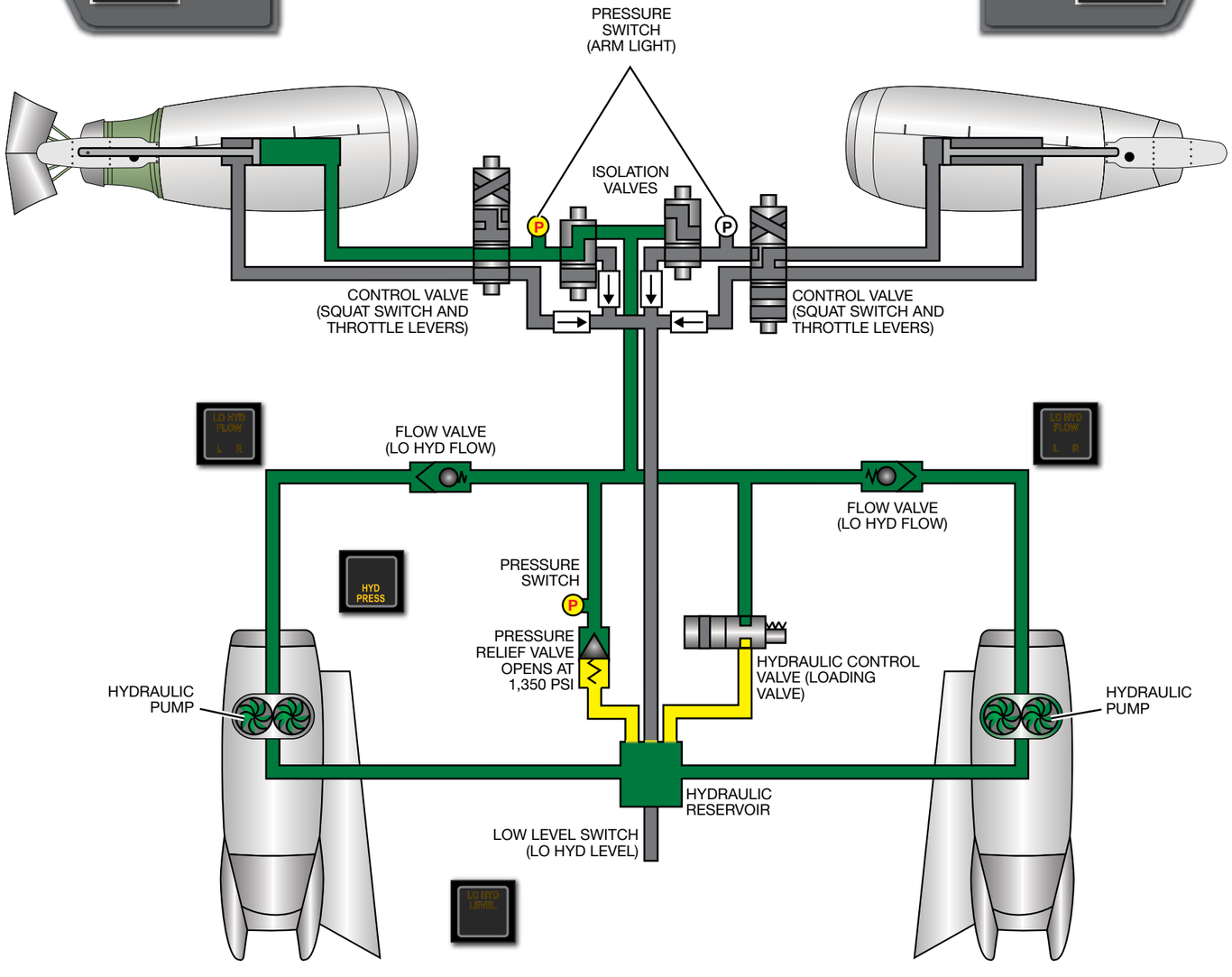
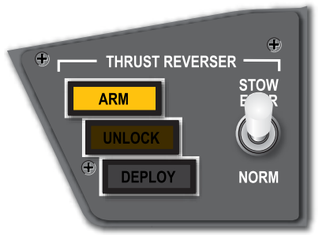
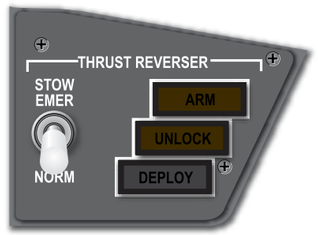


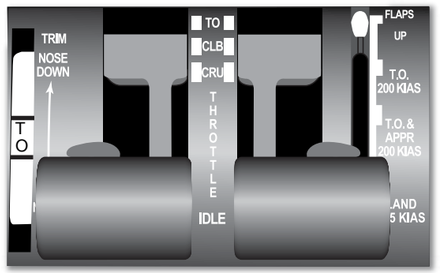
Figure 71-10. Left Thrust Reversers—Normal Deploy

NOTES

71-80







LEGEND

- LOW HYDRAULIC PRESSURE
- HIGHT HYDRAULIC SUPPLY PRESSURE
- RETURN PRESSURE

CONDITION:
LH EMERGECNY STOW SWITCH IN EMER STOW POSITION

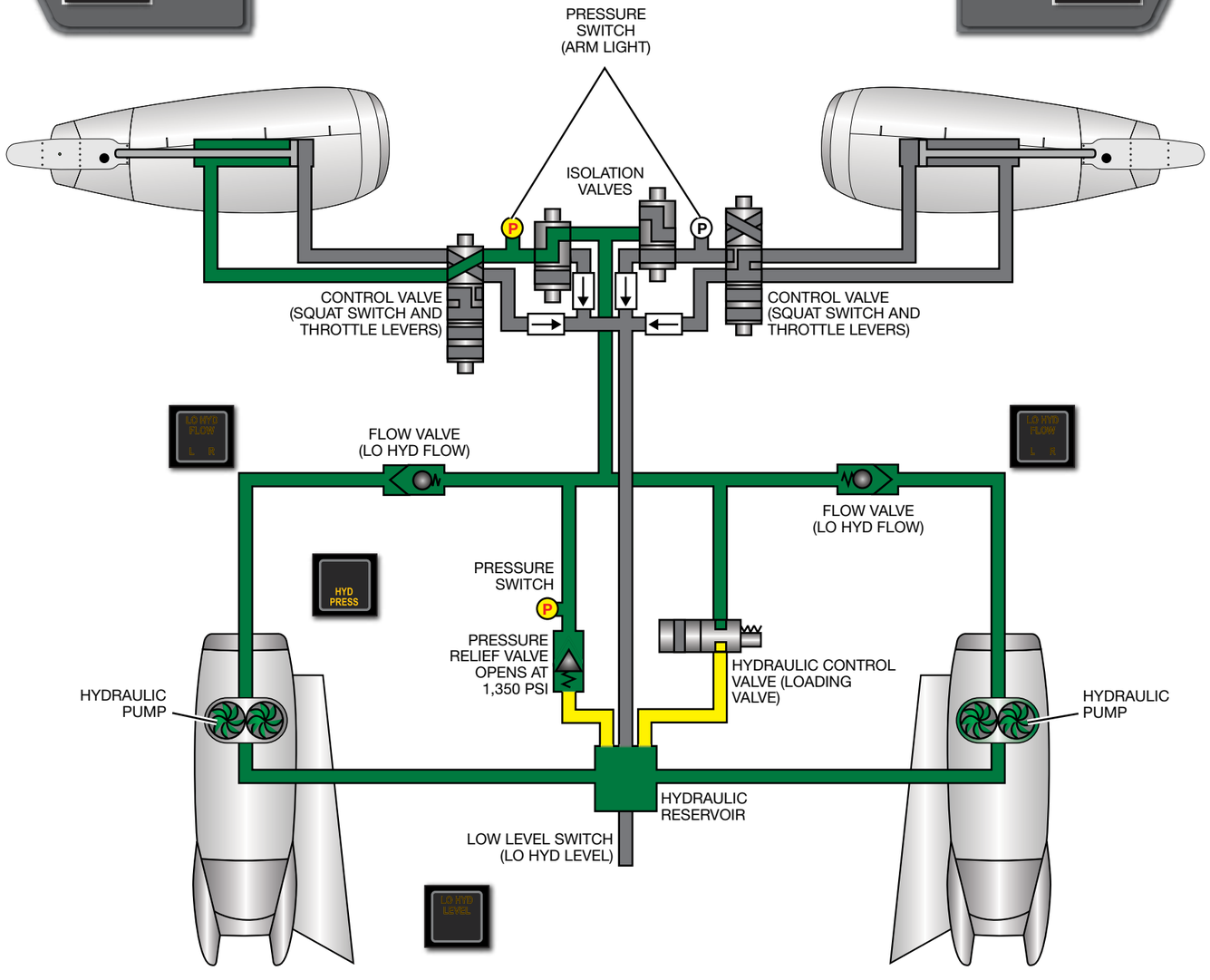
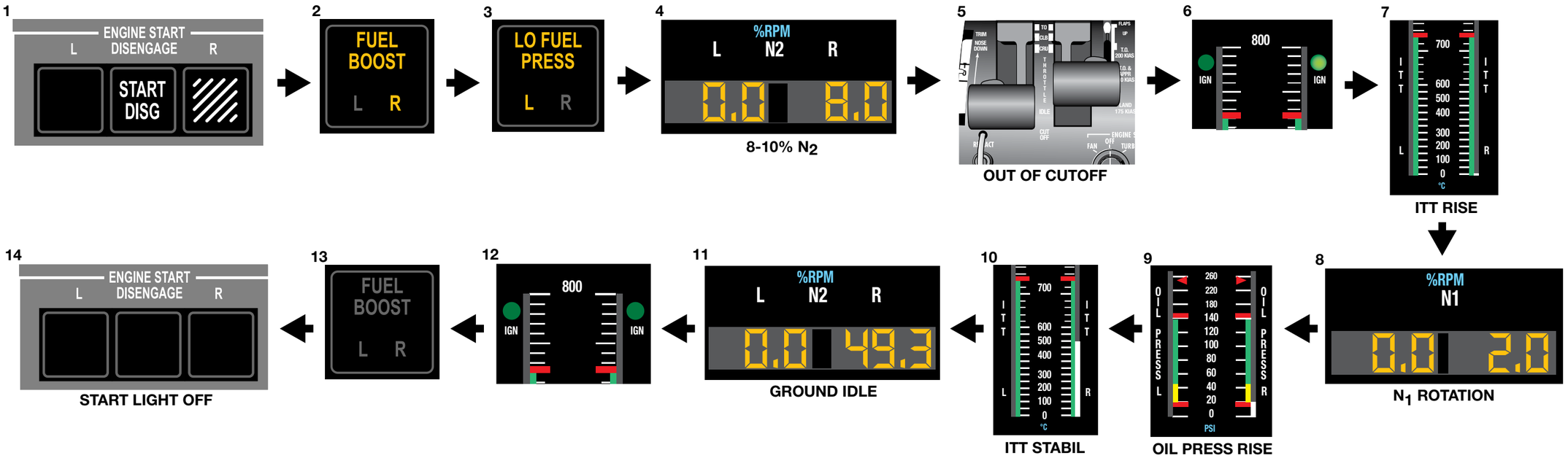


Figure 71-11. Left Thrust Reverser—Emergency Stowed

NOTES



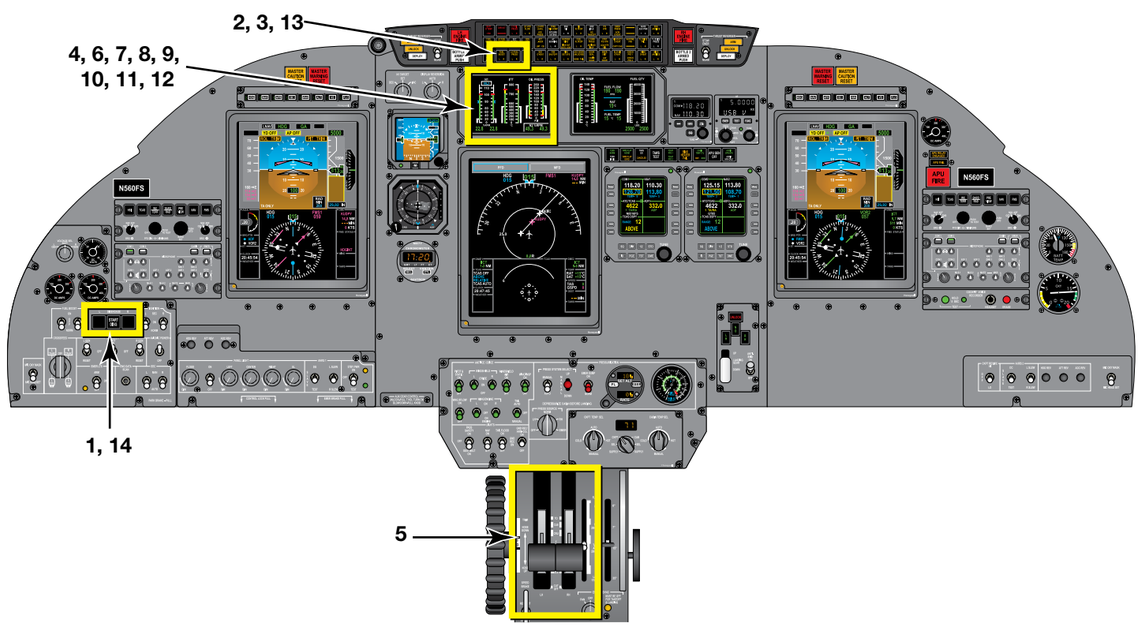
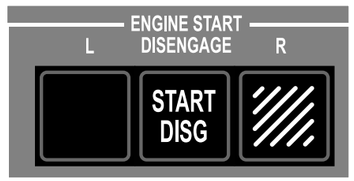


Figure 71-12. L Start Procedures—5001-5268

NOTES

71-80

1



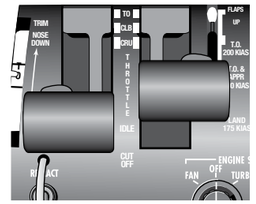
2

3

4

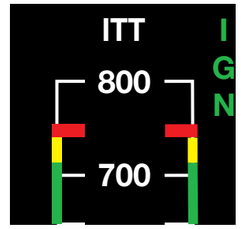
8-10% N_2

5

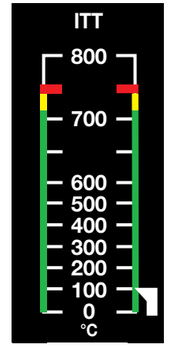


OUT OF CUTOFF

6

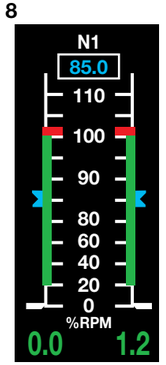


7



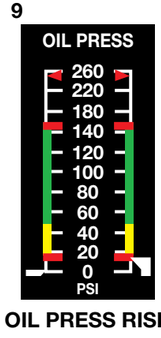
ITT RISE

8



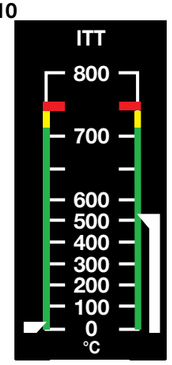
N_1 ROTATION

9



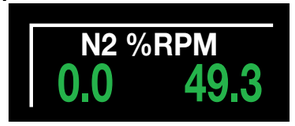
OIL PRESS RISE

10

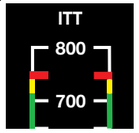


ITT STABIL

11



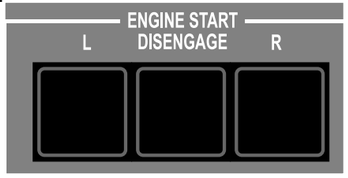
12



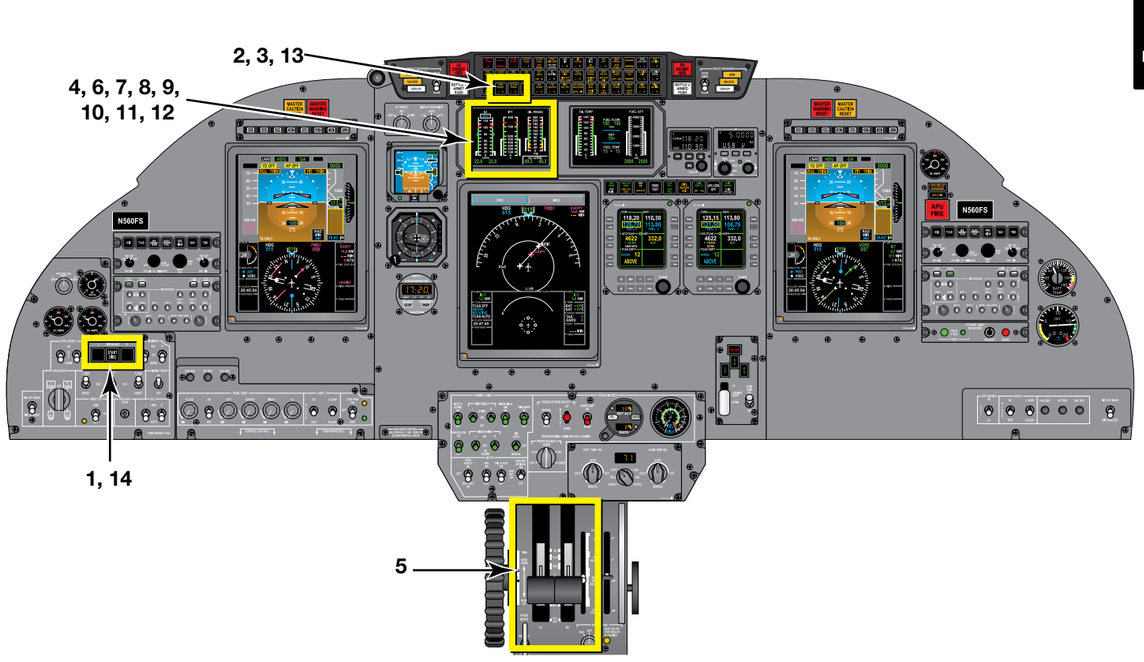
IGN OFF

13

14

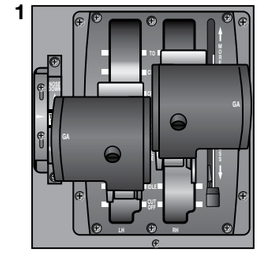


START LIGHT OFF



NOTES

Figure 71-13. XL/XLS Start Procedures 5269 and Subsequent



1 OUT OF CUTOFF

2 FUEL BOOST PUMP ON R
PITOT/STATIC COLD L - R - STBY

3 ENGINE START L DISENGAGE R
START DISG

4 N2 % 0.0 8.2
8.2% N_2

5 ITT °C 750 700 IGN
IGN ON

6 ITT °C 750 700 650 600 400 200
ITT RISE

7 N1 % 90.3 100 90 80 60 40 20 0.0 1.2
N_1 ROTATION @ ~20% N_2

8 OIL PSI
OIL PRESSURE RISE

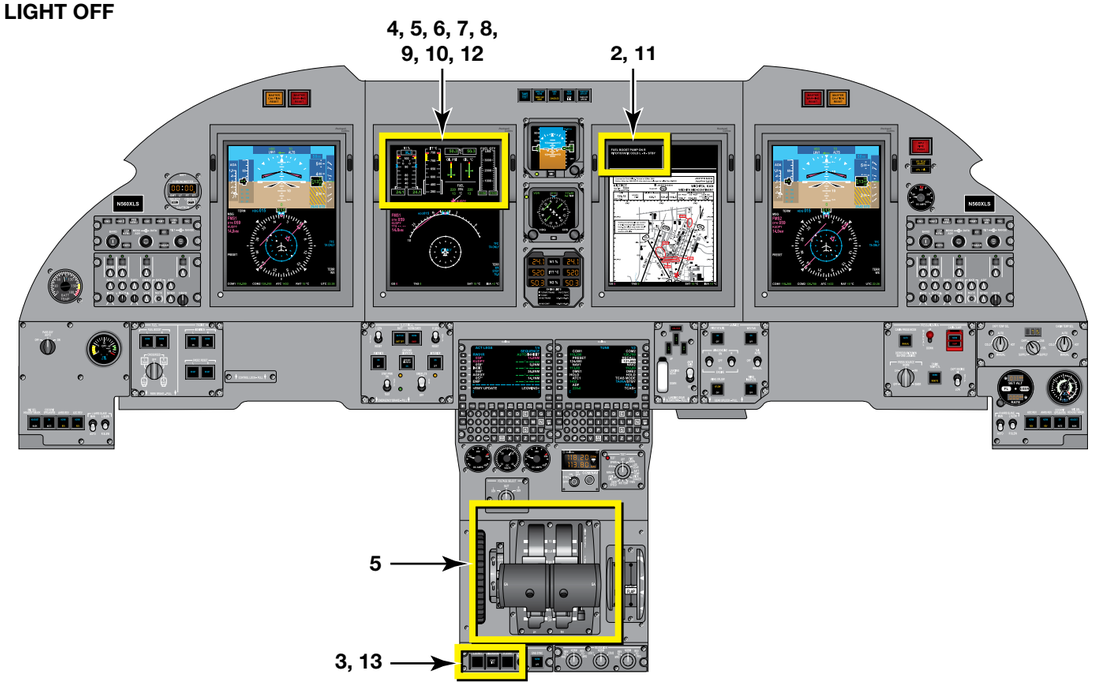
9 ITT °C 750 700 650 600 400 200
ITT STABILIZED
NOT HOT
NOT HUNG

10 N2 % 0.0 42.0
START TERMINATION

11 PITOT/STATIC COLD L - R - STBY
BOOST PUMP OFF

12 ITT °C 750 700
IGN OFF

13 ENGINE START L DISENGAGE R
START LIGHT OFF



NOTES

Figure 71-14. XLS+ Start Procedure “A”

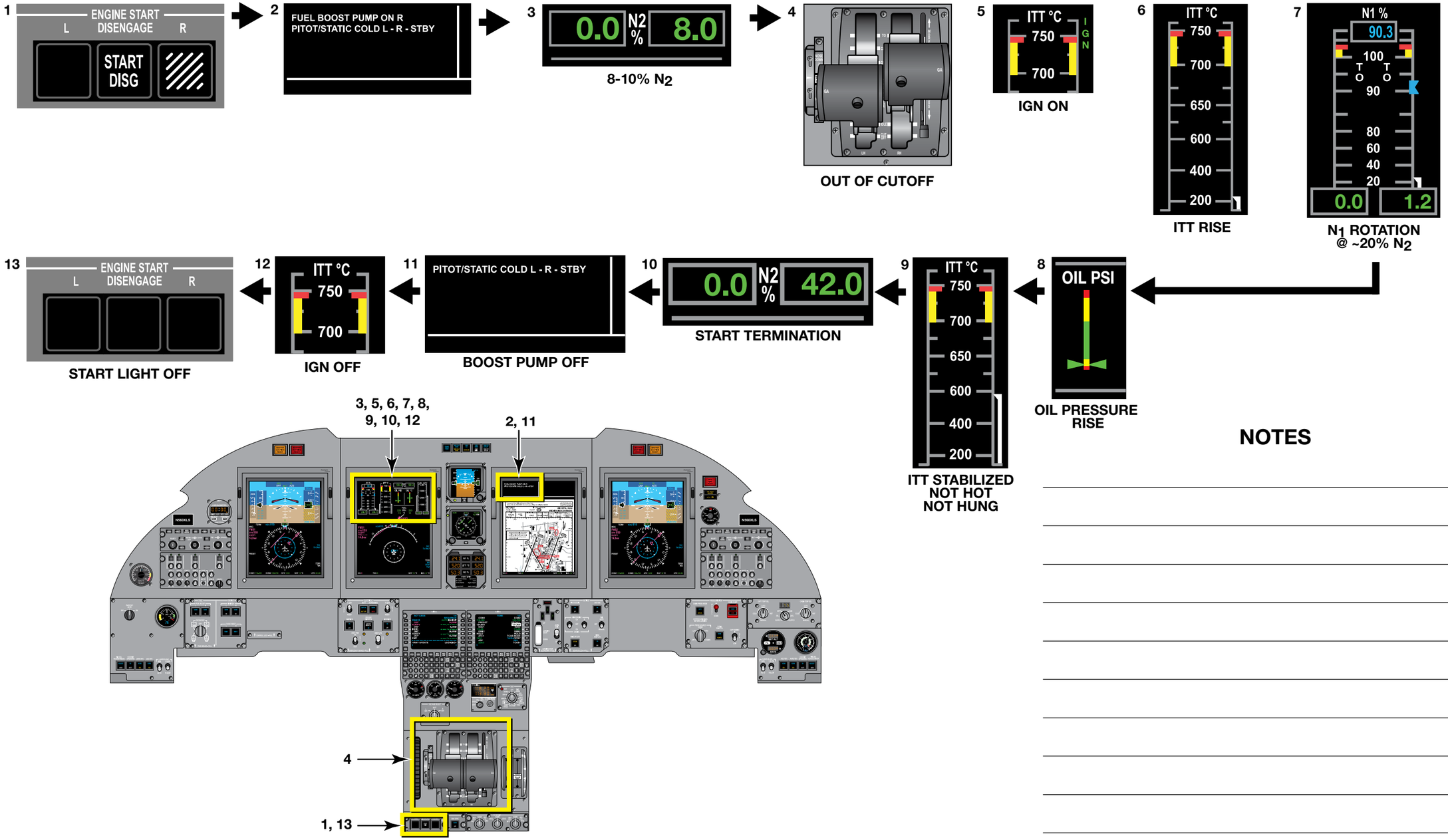


Figure 71-15. XLS+ Start Procedure “B”

NOTES

71-80